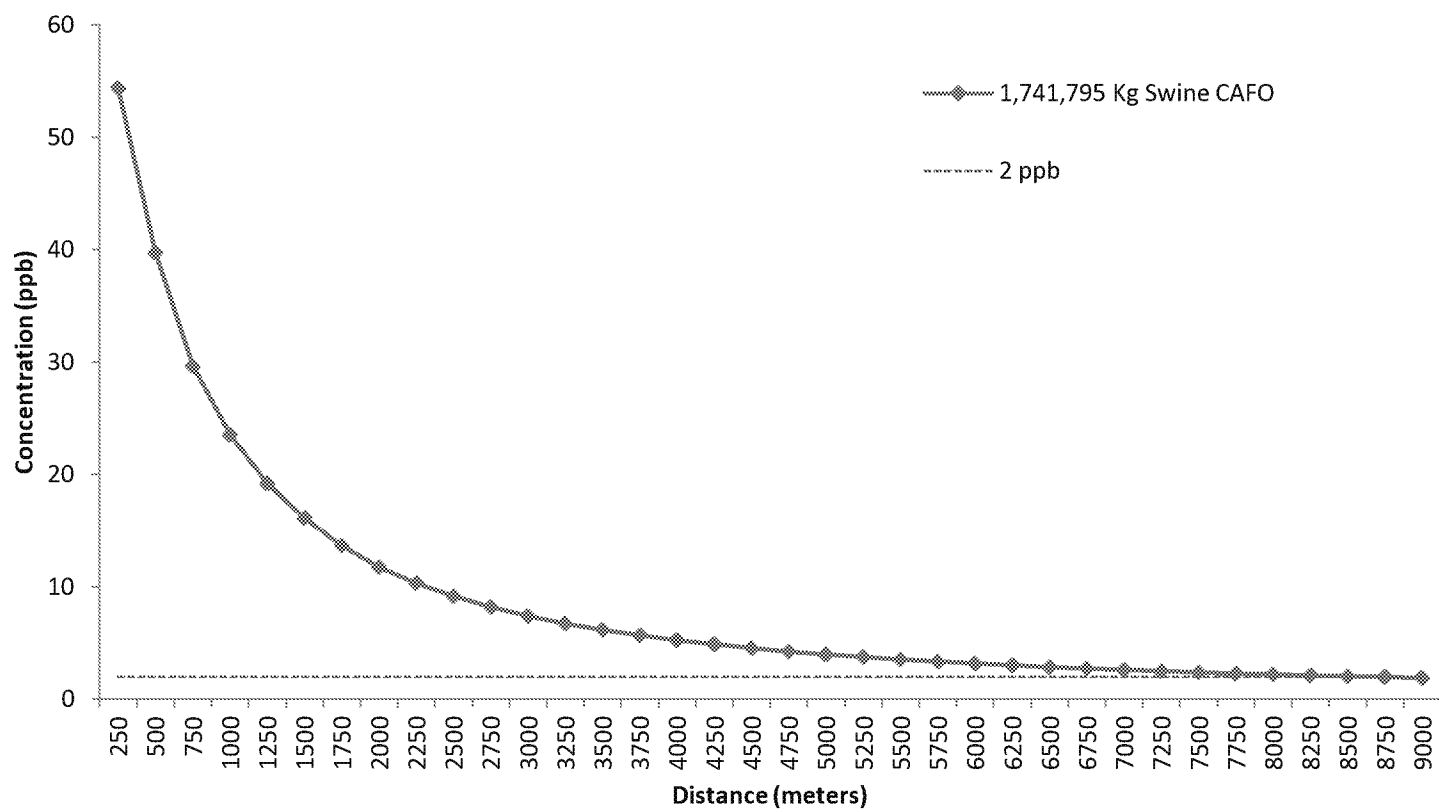


Figure 4. Largest Swine CAFO Average Estimated Hydrogen Sulfide Concentrations and Distance Away from the Source



North Carolina odor control

<http://deq.nc.gov/about/divisions/air-quality/air-quality-rules/rules/control-of-odors>

Odors

Who do I contact about odors from the neighboring animal operation?

The N.C. Division of Air Quality regulates odors from animal operations such as hog and poultry farms. [Learn more](#) about these regulations.

What about other objectionable odors?

You may contact your local governing authority (e.g., municipal or county government) to see if they have any ordinances or regulations pertaining to odors.

Section .1800 - Control of Odors

1801 Definitions

1802 Control of Odors from Animal Operations Using Liquid Animal Waste Management Systems

1803 Best Management Plans for Animal Operations

1804 Reporting Requirements for Animal Operations

1805 [Reserved]

1806 Control and Prohibition of Odorous Emissions

1807 Determination of Maximum Feasible Controls for Odorous Emissions

1808 Evaluation of New or Modified Swine Farms

Rules

- [Section .0100-Definitions and References](#)
- [Section .0200-Air Pollution Sources](#)
- [Section .0300-Air Pollution Emergencies](#)

Requested by: Senator Plyler, Representatives Mitchell, Baker, Carpenter

ODOR CONTROL STUDY FUNDS

Section 15.6. Of the funds appropriated to the Department of Environment, Health, and Natural Resources for the 1996-97 fiscal year and transferred to the Board of Governors of The University of North Carolina for the North Carolina Agricultural Research Service at North Carolina State University for research into economically feasible odor control technologies and for a detailed economic analysis of odor management alternatives, the sum of six hundred thousand dollars (\$600,000) shall not revert to the General Fund on June 30, 1997. These funds shall remain in the budget of North Carolina State University for expenditure by the North Carolina Agricultural Research Service during the 1997-98 fiscal year. These funds may be used for capital expenditures to construct current technology swine production facilities for the purpose of research in adapting or developing new odor control technologies. The use of these funds for capital expenditures shall be authorized without any requirement of matching funds from private sources.

12. REACH water sampling includes testing for markers that we think indicate diminished water quality in the watershed. Specifically, we have tested streams in the watershed for E. Coli., MRSA, fecal coliform and enterococcus. We informally submitted this data to the North Carolina Department of Environment and Natural Resources (DENR) to have one watershed in particular, Maple Branch, added to the 303(d) list. As of today, that water body has not been added to the state's list of impaired water bodies, and REACH plans to continue to advocate for its inclusion.

IP ATTACHMENT 2 STUDIES/REPORTS

Studies and reports submitted as exhibits to or cited in the Complaint; cited in the disparate impact analysis submitted as an exhibit to the Complaint; or cited Earthjustice 2013 comments on draft Swine Permit.

“*” indicates apparent NC focus.

* Wing, Steve & Johnston, Jill, Dep’t of Epidemiology, Univ. of N.C. at Chapel Hill, *Industrial Hog Operations in North Carolina Disproportionately Impact People of Color* (2014) (**Exhibit 4**)

* Wing, Steve & Johnston, Jill, Dep’t of Epidemiology, Univ. of N.C. at Chapel Hill, *Industrial Hog Operations in North Carolina Disproportionately Impact People of Color* (2015) (**update of Exhibit 4**)

*Wing, Steve et al., *Environmental Injustice in North Carolina’s Hog Industry*, 108 *Envtl. Health Perspectives* 225, 228 (2000), (**Exhibit 52**). (finding that North Carolina’s intensive hog confinement operations are located disproportionately in communities with higher levels of poverty, higher proportions of non-white persons, and higher dependence on wells for household water supply).

* Edwards, B. & Ladd, AE, *Race, Poverty, Political Capacity and the Spatial Distribution of Swine Waste in North Carolina, 1982–1997*, 9 *North Carolina Geogr* 55–77 (2001).

* Stretesky, Paul B. et al., *Environmental Inequity: An Analysis of Large-Scale Hog Operations in 17 States, 1982-1997*, 68 *Rural Soc.* 231 (2003) (finding that between 1982 and 1997 large-scale hog operations in North Carolina were more likely to be sited in areas with a disproportionate number of black residents).

Odors

*Wing S, Horton RA, Marshall SW, Thu K, Tajik M, Schinasi L, et al. 2008. *Air Pollution and Odor in Communities Near Industrial Swine Operations*. *Environ. Health Perspect.* 116:1362-1368. (For approximately 2 weeks, 101 nonsmoking adult volunteers living near industrial swine operations in 16 neighborhoods in eastern North Carolina sat outdoors for 10 min twice daily at preselected times. Participants reported 1,655 episodes of swine odor. In nine neighborhoods, odor was reported on more than half of study-days. The study indicates malodor from swine operations is commonly present in these communities and that the odors reported by neighbors are related to objective environmental measurements and interruption of activities of daily life.)

* Schiffman Susan S. et al., *Quantification of Odors and Odorants from Swine Operations in North Carolina*, 108 Agric. & Forest Meteorology 213 (2001). (neighbors of confinement facilities experienced increased levels of mood disorders including anxiety, depression, and sleep disturbances attributable to exposures to malodorous compounds.)

*Avery, Rachel Horton et al., *Malodor as a Trigger of Stress and Negative Mood in Neighbors of Industrial Hog Operations*, 99 Am. J. Pub. Health Suppl., S610 (2009). (Hog odor, hydrogen sulfide, and semivolatile PM₁₀ are related to stress and negative mood in disproportionately low-income communities near industrial hog operations in eastern North Carolina. Malodor should be considered in studies of health impacts of environmental injustice.)

*Schiffman SS, Sattely Miller EA, Suggs MS, Graham BG. 1995. *The Effect of Environmental Odors Emanating from Commercial Swine Operations on the Mood of Nearby Residents*. Brain Research Bulletin 17:369-375. (neighbors of confinement facilities experienced increased levels of mood disorders including anxiety, depression, and sleep disturbances attributable to exposures to malodorous compounds.)

*Tajik M, Muhammad N, Lowman A, Thu K, Wing S, Grant G. 2008. *Impact of Odor from Industrial Hog Operations on Daily Living Activities*. New Solutions 18:193-205. (75 participants in eastern North Carolina in 2002 and again in 2004 and 2005. Indicates that hog odor limits several leisure time activities and social interactions which could have adverse public health consequences.)

* Avery, Rachel et al., *Odor from Industrial Hog Farming Operations and Mucosal Immune Function in Neighbors*, 59(2) Archives of Env'tl. Health 101 (2004) (finding that swine odor was associated with reduced mucosal immune function among 15 adults living near industrial swine operations in North Carolina).

Air

* Deerhake, Marion et al., *Atmospheric Dispersion and Deposition of Ammonia Gas*, in RTI Int'l, Benefits of Adopting Environmentally Superior Swine Waste Management Technologies in North Carolina: An Environmental and Economic Assessment, at 2-32 to 2-34 (2003), available at http://www.cals.ncsu.edu/waste_mgt/smithfield_projects/phase1report04/appendix%20c-RTI.pdf, (**Exhibit 47**) (modeling rates of ammonia deposition by county). "The greatest deposition occurs in Sampson and Duplin counties." *Id.* at 2-33.

* Mirabelli, Maria C. et al., *Asthma Symptoms Among Adolescents Who Attend Public Schools That Are Located Near Confined Swine Feeding Operations*, 118 Pediatrics e66 (2006) (**Exhibit 42**) (finding students aged 12 to 14 who attended North Carolina public schools within 3 miles of industrial swine facilities reported increased asthma-related symptoms, more doctor-diagnosed asthma, and more asthma-related medical visits compared to peers at other schools).

* Mirabelli, Maria C. et al., *Race, Poverty, and Potential Exposure of Middle-School Students to Air Emissions from Confined Swine Feeding Operations*, 114 Env'tl. Health Perspectives 591,

595 (2006) (**Exhibit 43**) (finding that North Carolina's swine facilities are located closer to schools enrolling higher percentages of non-white and economically disadvantaged students).

* Schinasi, Leah et al., *Air Pollution, Lung Function, and Physical Symptoms in Communities Near Concentrated Swine Feeding Operations*, 22 *Epidemiology* 208, 208 (2011), (**Exhibit 48**) (measuring pollutants levels and effect on 101 adults living near hog CAFOs in 16 eastern North Carolina communities).

* Sacoby, M. Wilson & Serre, Marc L., *Examination of Atmospheric Ammonia Levels Near Hog CAFOs, Homes, and Schools in Eastern North Carolina*, 41 *Atmospheric Env't* 4977, 4985 (2007), (**Exhibit 49**). (NH₃ weekly average concentrations that were collected using passive diffusion tubes from October 2003 to May 2004 (20 sites) and from July 2004 to October 2004 (23 sites) near community locations in close proximity to hog CAFOs. The results indicate potential zones of exposure for human populations who live or go to school near hog CAFOs.)

* Steve Wing et al., *Air Pollution and Odor in Communities near Industrial Swine Operations*, 116 *Envtl. Health Perspectives* 1362 (2008), (**Exhibit 50**) (study participants living within 1.5 miles of swine factory farm reported altering or ceasing normal daily activities when hydrogen sulfide concentrations, and associated hog odor, were the highest).

* Wing, Steve et al., *Air Pollution from Industrial Swine Operations and Blood Pressure of Neighboring Residents*, 121 *Envtl. Health Perspectives* 92 (2013) (**Exhibit 51**). (Like noise and other repetitive environmental stressors, malodors may be associated with acute blood pressure increases that could contribute to development of chronic hypertension.)

Vanotti, Matias B. & Patrick G. Hunt, *Ammonia Removal from Swine Wastewater Using Immobilized Nitrifiers*, in *Proceedings of the 8th Int'l. Conf. of the FAO ESCORENA Network on Recycling of Agricultural, Municipal and Industrial Residues in Agriculture*, Rennes, France 427, 428 (1998), available at <http://www.ramiran.net/doc98/FIN-ORAL/VANOTTI.pdf>.

Zahn, James A. et al., *Air Pollution from Swine Production Facilities Differing in Waste Management Practice* 3, *Proceedings of the Odors and Emission 2000 Conference* (2000) (listing all types of "emissions released from stored swine manure" mentioned above).

Merchant, James A. et al., *Asthma and Farm Exposures in a Cohort of Rural Iowa Children*, 113 *Envtl. Health Perspectives* 350 (2005) (finding children living on swine farms, including large facilities with more than 500 head, experienced increased rates of asthma compared to non-exposed children; results more pronounced where swine facilities added antibiotics to feed).

Radon, Katja et al., *Environmental Exposure to Confined Animal Feeding Operations and Respiratory Health of Neighboring Residents*, 18 *Epidemiology* 300 (2007) (surveying nearly 7,000 residents of four German towns with high confined livestock operation densities and

concluding that such operations “may contribute to the burden of respiratory disease among their neighbors”). (Footnoted in Earthjustice comments on draft permit).

* Walker, John T. et al., *Atmospheric Transport and Wet Deposition of Ammonium in North Carolina*, 34 *Atmospheric Env't* 3,407 (2000). (NH₃ emissions from this source region, primarily evolving from swine and poultry operations, are found to increase NH₄⁺ concentration in precipitation at sites up to ≈80 km away. At the Scotland County (NC36) and Wake County (NC41) sites, mean NH₄⁺ concentrations show increases of at least 44% for weeks during which 25% or more back trajectories are influenced by this source region.)

*Costanza, Jennifer K et al., *Potential Geographic Distribution of Atmospheric Nitrogen Deposition from Intensive Livestock Production in North Carolina, USA*, 398 *Sci. Total Env't* 76, 77 (2008).

* Schiffman, Susan S. et al., *Symptomatic Effects of Exposure to Diluted Air Sampled from a Swine Confinement Atmosphere on Healthy Human Subjects*, 113 *Env'tl. Health Perspectives* 567 (2005) (finding that those exposed to diluted swine air for two 1-hour sessions were more likely to report headaches, eye irritation, and nausea than the control group that was exposed to clean air); [[HYPERLINK "http://www.ncbi.nlm.nih.gov/pubmed/15866765"](http://www.ncbi.nlm.nih.gov/pubmed/15866765)]. (Aerial emissions from a swine house at North Carolina State University's field laboratory were diluted to a level that could occur at varying distances downwind from a confined animal feeding operation (CAFO) both within and beyond the property line, and these emissions were delivered to an environmental exposure chamber.)

*Sacoby, M. Wilson & Serre, Marc L. *Use of Passive Samplers to Measure Atmospheric Ammonia Levels in a High-density Industrial Hog Farm Area of Eastern North Carolina*, 41 *Atmospheric Env't* 6,074 (2007). (October 2003 to May 2004 (20 sites) and from July 2004 to October 2004 (23 sites) at varying distances from hog CAFOs in close proximity to homes and schools. Average weekly NH₃ levels were measured. Mean level of 13.8 ppb near homes and schools (<2 km) was 4–12 times greater than ambient background levels (1–3 ppb), reaching as high as 80 ppb. Exposed sites (<2 km from a hog CAFO) had a mean level of 12.8 ppb which was over 2 times higher than the mean level of 5.5 ppb at less exposed sites (>2 km from a hog CAFO).)

Donham K. 1993. *Respiratory Disease Hazards to Workers in Livestock and Poultry Confinement Structures*. *Seminars in Respiratory Medicine* 14:49-59.

Donham K, Reynolds S, Whitten P, Merchant J, Burmeister L, Pependorf W. 1995. *Respiratory Dysfunction in Swine Production Facility Workers: Dose-response Relationships of Environmental Exposures and Pulmonary Function*. *American Journal of Industrial Medicine* 27:405-418.

Donham K, Cumro D, Reynolds S, Merchant J. 2000. *Dose-Response Relationships Between Occupational Aerosol Exposures and Cross-Shift Declines of Lung Function in Poultry Workers*:

Recommendations for Exposure Limits. Journal of Occupational and Environmental Medicine 42:260-269.

Donham, KJ. 1990. *Health Effects from Work in Swine Confinement Buildings*. American Journal of Industrial Medicine 17:17-25.

Water

* Anderson, M.E. & Sobsey, M.D. *Detection and Occurrence of Antimicrobially Resistant E. coli in Groundwater on or near Swine Farms in Eastern North Carolina*, 54 Water Sci. & Tech. 211, 217 (2006), (**Exhibit 37**) (“Overall, the results of this study demonstrated that antibiotic-resistant E. coli were present in ground waters associated with commercial swine farms that have anaerobic lagoons and land application systems for swine waste management.”).

*Wendee, Nicole, *CAFOs and Environmental Justice: The Case of North Carolina*, 121 Env'tl. Health Perspectives A182, A186 (2013), (**Exhibit 44**) (“Even without spills, ammonia and nitrates may seep into groundwater, especially in the coastal plain where the water table is near the surface.”).

* Burkholder, JoAnn M. et al., *Impacts of Waste from CAFOs on Water Quality*, 115 Env'tl. Health Perspectives 308, 309 (2007) (**Exhibit 3 to Burkholder Declaration**). (article is part of the mini-monograph “Environmental Health Impacts of Concentrated Animal Feeding Operations: Anticipating Hazards—Searching for Solutions.”)

* Mallin, Michael A. et al., Ctr. for Marine Science Research, Univ. of N.C. at Wilmington, *Effect of Organic and Inorganic Nutrient Loading on Photosynthetic and Heterotrophic Plankton Communities in Blackwater Rivers* (1998), *available at* <http://repository.lib.ncsu.edu/dr/bitstream/1840.4/1880/1/NC-WRRI-315.pdf>;

Hodne, Carol J., Iowa Policy Project, *Concentrating on Clean Water: The Challenge of Concentrated Animal Feeding Operations* 8 (2005), *available at* <http://www.iowapolicyproject.org/2005docs/050406-cafo-fullx.pdf>. 2005docs/050406-cafo-fullx.pdf (identifying “seepage from earthen manure storage structures” as typical pathway for nitrates entering groundwater).

* Burkholder, JoAnn M. & Glasgow, Howard B. *History of Toxic Pfiesteria in North Carolina Estuaries from 1991 to the Present*, 51 Biosci. 827, 833 (2001) (“During acute [Pfiesteria] exposure, fish commonly hemorrhage or develop skin lesions that are diffuse or nonfocal, as well as deep, localized or focal, bleeding sores or ulcerations.”).

* Mallin, Michael A. et al., *Factors Contributing to Hypoxia in Rivers, Lakes, and Streams*, 51 Limnology & Oceanography 690, 699-700 (2006). (Investigated physical, chemical, and biological variables contributing to biochemical oxygen demand (BOD) in 17 North Carolina lotic and lentic water bodies affected by mild to severe hypoxia.)

* Wing, Steve et al., *The Potential Impact of Flooding on Confined Animal Feeding Operations in Eastern North Carolina*, 110 *Envtl. Health Perspectives* 387, 387 (2002), available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1240801/pdf/ehp0110-000387.pdf> (describing how the 15-20 inches of rain dropped by Hurricane Floyd turned eastern North Carolina into a fecal flood zone). The flooding following Hurricane Floyd was not an isolated incident. *Id.* ("In 1996, 22 fecal waste pits were reported to have been ruptured or inundated following flooding from Hurricane Fran, and one major spill was reported following Hurricane Bonnie in 1998.").

* Casteel et al., "Fecal Contamination of Agricultural Soils Before And After Hurricane-Associated Flooding In North Carolina," *J Environ Sci Health A Tox Hazard Subst Environ Eng* 41, no.2 (2006).

Ham, J.M. & Baum, K.A. *Measuring Seepage from Waste Lagoons and Earthen Basins with an Overnight Water Balance Test*, 52 *Am. Soc'y of Agric. And Biological Engineers* 835 (2009) (introducing test capable of producing accurate seepage measurements in single overnight performance).

Ham, J.M. *Seepage losses from animal waste lagoons: A summary of a four year investigation in Kansas*, 45 *Am. Soc'y of Agric. Eng'rs* 983 (2002) (summarizing study performed using earlier variation of water balance method).

Antibiotic Resistance

Casey, Joan A. *High-Density Livestock Operations, Crop Field Application of Manure, and Risk of Community-Associated Methicillin-Resistant Staphylococcus aureus Infection in Pennsylvania*, 173 *J. Am. Med Ass'n: Internal Med.* 1980 (2013).

Ctrs. for Disease Control, U.S. Dep't of Health and Human Servs., *Antibiotic Resistance Threats in the United States*, 2013, at 6 (2013), available at <http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf>.

Denis, Oliver et al., *Methicillin-Resistant Staphylococcus aureus ST398 in Swine Farm Personnel, Belgium*, 15 *Emerging Infectious Diseases* 1098 (2009) (Belgium).

Huijsdens, Xander W. et al., *Community-Acquired MRSA and Pig-Farming*, 5 *Annals Clinical Microbiol. & Antimicrobials* 26 (2006) (Netherlands).

Khanna, T. et al., *Methicillin Resistant Staphylococcus aureus Colonization in Pigs and Pig Farmers*, 128 *J. Veterinary Microbiol.* 298 (2008) (Canada).

* Rinsky JL, Nadimpalli M, Wing S, Hall D, Baron D, Price LB, et al. 2013. *Livestock-Associated Methicillin and Multidrug Resistant Staphylococcus Aureus Is Present Among Industrial, Not Antibiotic-Free Livestock Operation Workers in North Carolina*. *PloS One* 8:e67641.

Schulz, Jochen et al., *Longitudinal Study of the Contamination of Air and of Soil Surfaces in the Vicinity of Pig Barns by Livestock-Associated Methicillin-Resistant Staphylococcus aureus*, 78 Applied Env'tl. Microbiol. 5666 (2012) (detecting MRSA 300 feet from a barn in which animals, air, and workers' plastic boots tested positive for MRSA).

Silbergeld, EK & Price LB, *Industrial Food Animal Production, Antimicrobial Resistance, and Human Health*, 29 Ann. Rev. of Pub. Health 151 (2008).

Silbergeld, E.K., et al., *One Reservoir: Redefining the Community Origins of Antimicrobial-Resistant Infections*, Med Clin North Am 92, no. 6 (2008).

Smith, Tara C., et al., *Methicillin-Resistant Staphylococcus aureus (MRSA) Strain ST398 Is Present in Midwestern U.S. Swine and Swine Workers*, 4 PLoS One e4258 (2009).

Smith, Tara C., et al., *Methicillin-Resistant Staphylococcus aureus in Pigs and Farm Workers on Conventional and Antibiotic-Free Swine Farms in the USA*, 8 PLoS One e63704 (2013).

Van den Broek, Ingrid V.F. et al., *Methicillin-Resistant Staphylococcus aureus in People Living and Working in Pig Farms*, 137 J. Epidem. & Infection 700 (2009) (Netherlands).

West, Bridgett M., et al., *Antibiotic Resistance, Gene Transfer, and Water Quality Patterns Observed in Waterways Near CAFO Farms and Wastewater Treatment Facilities*, 217 Water Air Soil Pollution 473 (2011).

Barrett, Julia R., *Airborne Bacteria in CAFOs: Transfer of Resistance from Animals to Humans*, 113 Env'tl. Health Perspectives A116 (2005) (reviewing literature on cross-species transfer of antibiotic-resistant bacteria).

Chapin, Amy, et al., *Airborne Multidrug-Resistant Bacteria Isolated from a Concentrated Swine Feeding Operation*, 113 Env'tl. Health Perspectives 137 (2005) (finding multidrug-resistant *Enterococcus*, coagulase-negative staphylococci, and viridans group streptococci in the air of an industrial swine operation at levels dangerous to human health).

Gibbs, Shawn G. et al., *Isolation of Antibiotic-Resistant Bacteria from the Air Plume Downwind of a Swine Confined or Concentrated Animal Feeding Operation*, 114 Env'tl. Health Perspectives 1032 (2006).

Gibbs, Shawn G. et al., *Airborne Antibiotic Resistant and Nonresistant Bacteria and Fungi Recovered from Two Swine Herd Confined Animal Feeding Operations*, 1 J. Occupational & Env'tl. Hygiene 699 (2004) (finding multidrug-resistant bacteria inside and downwind of industrial swine operations at levels previously determined to pose a human health hazard). (midwest CAFOs)

Casey JA, Curriero FC, Cosgrove SE, Nachman KE, Schwartz BS. 2013. *High-Density*

Livestock Operations, Crop Field Application of Manure, and Risk of Community-Associated Methicillin-Resistant Staphylococcus Aureus Infection in Pennsylvania. JAMA Internal Medicine 173:1980-1990.

*Cole, D, Drum DJ, Stalknecht DE, White DG, Lee MD, Ayers S, et al. 2005. *Free-living Canada Geese and Antimicrobial Resistance.* Emerging Infectious Diseases 11:935-938. (Describes antimicrobial resistance among *Escherichia coli* isolated from free-living Canada Geese in Georgia and North Carolina (USA). Resistance patterns are compared to those reported by the National Antimicrobial Resistance Monitoring System. Canada Geese may be vectors of antimicrobial resistance and resistance genes in agricultural environments.)

Graham JP, Price LB, Evans SL, Graczyk TK, Silbergeld EK. 2009. *Antibiotic Resistant Enterococci and Staphylococci Isolated from Flies Collected near Confined Poultry Feeding Operations.* Sci Total Environ 407:2701-10. (Delmarva Peninsula)

*Rinsky JL, Nadimpalli M, Wing S, Hall D, Baron D, Price LB, et al. 2013. *Livestock-Associated Methicillin and Multidrug Resistant Staphylococcus Aureus Is Present Among Industrial, Not Antibiotic-Free Livestock Operation Workers in North Carolina.* PloS One 8:e67641.

van de Giessen AW, van Santen-Verheuveld MG, Hengeveld PD, Bosch T, Broens EM, Reusken CB. 2009. *Occurrence of Methicillin-Resistant Staphylococcus Aureus in Rats Living on Pig Farms.* Preventive Veterinary Medicine 91:270-273. (Netherlands)

Green CF, Gibbs SG, Tarwater PM, Mota LC, Scarpino PV. 2006. *Bacterial Plume Emanating from the Air Surrounding Swine Confinement Operations.* Journal of Occupational and Environmental Hygiene 3:9-15. (midwest CAFOs)

Property Values

* Kim, Jungik & Goldsmith, Peter, *A Spatial Hedonic Approach to Assess the Impact of Swine Production on Residential Property Values*, 42 Env'tl & Res. Econ. 509 (2009) (estimating decline in Craven County, NC home property values on per hog basis).

* Milla, Katherine, et al., *Evaluating the Effect of Proximity to Hog Farms on Residential Property Values: A GIS-Based Hedonic Model Approach*, 17 URISA J. 27 (2005) (finding that values of Craven County, North Carolina homes decreased with increasing local hog populations and decreasing distances from homes to factory farms).

*Palmquist RB, Roka FM, Vukina T (1997) *Hog Operations, Environmental Effects, and Residential Property Values.* Land Econ 73:114–124 (find that hog operations in North Carolina cause a reduction in house price up to 9% depending on the number of hogs and their distance from the house. They estimate that the effect of a new hog operation located within one-half mile of a house would decrease the house value by 4.75% if a house is exposed to an intermediate level of manure.)

Herriges JA, Secchi S, Babcock BA, *Living with Hogs in Iowa: The Impact of Livestock Facilities on Rural Residential Property Values*, 81 Land Econ. 530 (2005). (found that a moderate-size livestock operation (250,000 live weight pounds) can cause -26% reduction in property value in Iowa if the property is downwind and ¼ mile away from the facility.)

Surveys/Quality of Life/Public Health Impacts

*Bullers S. *Environmental Stressors, Perceived Control, and Health: The Case of Residents Near Large-Scale Hog Farms in Eastern North Carolina*. Human Ecology 33:1-16. (2005) (physical and psychological health effects of residence near industrial hog farms)

Cole, Dana et al., *Concentrated Swine Feeding Operations and Public Health: A Review of Occupational and Community Health Effects*, 108 Env'tl. Health Perspectives 685 (2000), available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1638284/pdf/envhper00309-0041.pdf>, (**Exhibit 39**).

Thu, K.M., *Public Health Concerns for Neighbors of Large-Scale Swine Production Operations*, 8 J. Agric. Safety & Health 175 (2002) (synthesizing research regarding public health concerns for neighbors of industrial swine facilities, including respiratory issues associated with air pollution).

Hribar, Carrie, Nat'l Ass'n of Local Bds. of Health, *Understanding Concentrated Animal Feeding Operations and Their Impact on Communities*, *Environmental Health* 4 (2010), available at http://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf, (**Exhibit 40**).

Pew Commission on Industrial Farm Animal Production, *Environmental Impact of Industrial Farm Animal Production* 1-2 (2008), available at http://www.ncifap.org/_images/212-4_EnvImpact_tc_Final.pdf, (**Exhibit 45**).

Pew Commission on Industrial Farm Animal Production, *Putting Meat on the Table: Industrial Farm Animal Production in America* (2008), available at http://www.ncifap.org/_images/PCIFAPSmry.pdf, (**Exhibit 46**) (describing the rise of industrial animal production in America and the effects on public health and the environment).

Gurian-Sherman, Doug, Union of Concerned Scientists, *CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations* (2008), available at http://www.ucsusa.org/assets/documents/food_and_agriculture/cafos-uncovered.pdf (discussing the substantial cost of confined animal feeding operations and discussing alternatives).

Greger, Michael & Koneswaran, Gowri, *The Public Health Impacts of Concentrated Animal Feeding Operations on Local Communities*, 33 Farm Cmty. Health 11, 13 (2010).

Stacy Sneeringer, *Does Animal Feeding Operation Pollution Hurt Public Health? A National Longitudinal Study of Health Externalities Identified by Geographic Shifts in Livestock Production*, 91 Am. J. Agric. Econ. 124, 130 (2009). (Using county-level data spanning two decades. 100,000 animal unit increase in a county corresponds to 123 more deaths of infants under one year per 100,000 births and 100 more deaths of infants under 28 days per 100,000 births. Doubling of production induces a 7.4% increase in infant mortality. Mortality increases are driven by elevated levels of respiratory diseases, providing suggestive evidence of an air pollution mechanism.)

Donham KJ, et al. *Community Health and Socioeconomic Issues Surrounding Concentrated Animal Feeding Operations*. Environ. Health Perspect. 115:317-320 (2007) (survey of literature on effects on physical health, mental health, social health, economic health)

Thu K, Donham K, Ziegenhorn R, Reynolds S, Thorne P, Subramanian P, et al. 1997. *A Control Study of the Physical and Mental Health of Residents Living near a Large-Scale Swine Operation*. Journal of Agricultural Safety and Health 3:13-26.

Thorne, P. S., *Environmental Health Impacts of Concentrated Animal Feeding Operations Anticipating Hazards-Searching for Solutions*, Environ Health Perspect 115, ro.2 (2007). (Describes 5 expert workgroup reports from 2004 scientific conference that outline the state of the science and public health concerns relating to major environmental health issues associated with CAFOs CAFO livestock production including respiratory health effects, modeling and monitoring of air toxics, water quality issues, influenza pandemics and antibiotic resistance, and community health and socioeconomic issues.)

Villeneuve, P. J. et al., *Intensive Hog Farming Operations and Self-Reported Health Among Nearby Rural Residents in Ottawa, Canada*, BMC Public Health 9(2009) (Higher prevalence of depression among those who lived within 3 km of the swine CAFO relative to those who lived more than 9 km away. Individuals who lived closer to the swine CAFO were more likely to worry about environmental issues such as water quality, outdoor and indoor smells, and air pollution which contributed to lower HRQOL scores for individuals who lived closer to swine CAFO. Prevalence of depression was much higher among those who indicated a concern about environmental issues (18.2%) when compared to those who did not (8.0%).)

Rule, A. M., et. al., *Food Animal Transport: A Potential Source of Community Exposures to Health Hazards from Industrial Farming (CAFOs)*, J Infect & Pub Health, 1:33-39, (2008). (Air and surface samples were taken from cars driving behind poultry trucks for 17 miles. Air conditioners and fans were turned off and windows fully opened. Results indicate an increase in the number of total aerobic bacteria including both susceptible and drug-resistant enterococci isolated from air and surface samples, and suggest that food animal transport in open crates introduces a novel route of exposure to harmful microorganisms and may disseminate these pathogens into the general environment.)

Other

Wing S. *Social Responsibility and Research Ethics in Community-Driven Studies of Industrialized Hog Production*. *Environ. Health Perspect.* 110:437–444. (2002)

*Furuset O. *Restructuring of Hog Farming in North Carolina: Explosion and Implosion*. *Professional Geographer* 49:391-403. (1997)

Rotz, C.A., *Management to Reduce Nitrogen Losses in Animal Production*, 82 *J. Animal Sci.* E119, E129 (2004).

Rule, Ana M. et al., *Assessment of an Aerosol Treatment To Improve Air Quality in a Swine Concentrated Animal Feeding Operation*, 39 *Envtl. Sci. & Tech.*, 9649, 9649 (2005).

Thu K.. *Agriculture, the Environment, and Sources of State Ideology and Power*. *Culture and Agriculture* 23:1-7. (2001)

Thu K. *Industrial Agriculture, Democracy, and the Future*. In: *Beyond Factory Farming: Corporate Hog Barns and the Threat to Public Health, the Environment, and Rural Communities*, (Ervin A, Holtslander C, Qualman D, Sawa R, eds). Saskatoon, Saskatchewan:Canadian Centre for Policy Alternatives. (2003)

Other studies Ex. 5 - Deliberative Process

Donham KJ1, Lee JA, Thu K, Reynolds SJ., *Assessment Of Air Quality At Neighbor Residences In The Vicinity Of Swine Production Facilities.*, [HYPERLINK "http://www.ncbi.nlm.nih.gov/pubmed/19274894"] o "Journal of agromedicine."] 2006;11(3-4):15-24. doi: 10.1300/J096v11n03_03. [HYPERLINK "http://www.ncbi.nlm.nih.gov/pubmed/19274894"] (Air sampling was completed on the front lawn of 35 homes neighboring swine farms in Upper Midwest. In swine CAFO area, exceedences of federal recommended limits for hydrogen sulfide in outdoor air were observed in the swine CAFO area. Concentration of hydrogen sulfide exceeded the recommended limits of the ATSDR (30 ppb) for chronic exposure at two of the 12 homes in the CAFO area (17%). Average hydrogen sulfide concentration exceeded the EPA recommended community standards (0.7 ppb). As chronic exposure to hydrogen sulfide may be present in areas of production agriculture, a potential health risk may be present.)

Thorne PS, Ansley AC, Perry SS. *Concentrations of Bioaerosols, Odors, and Hydrogen Sulfide Inside and Downwind From Two Types of Swine Livestock Operations*. *J Occup Environ Hyg.* 2009 Apr;6(4):211-20. doi: 10.1080/15459620902729184 [HYPERLINK "http://www.ncbi.nlm.nih.gov/pubmed/19177273"] (Inhalable particulate matter, endotoxin, odor threshold, hydrogen sulfide, culturable mesophilic bacteria, culturable fungi, and total airborne microbes, along with wind speed, temperature, and humidity were measured at separate mid-sized livestock facilities (one hoop, one confinement) in Central Iowa on 10 occasions over 2 years. Significant differences in contaminants were observed between hoops and confinement buildings and across seasons for endotoxin, odors, airborne microorganisms, and hydrogen sulfide. Both types of swine operations produced high airborne concentrations of endotoxin, odor, hydrogen

sulfide, bacteria, and fungi. Endotoxin and odors were found downwind at concentrations previously associated with adverse health effects)

*Heaney, Christopher D., et al., *Source Tracking Swine Fecal Waste in Surface Water Proximal To Swine Concentrated Animal Feeding Operations*, Science of the Total Environment 511 (2015) 676-683.

Abstract: For one year, surface water samples at up- and downstream sites proximal to swine CAFO lagoon waste land application sites were tested for fecal indicator bacteria (fecal coliforms, *Escherichia coli* and *Enterococcus*) and candidate swine-specific microbial source-tracking (MST) markers (*Bacteroidales* Pig-1-Bac, Pig-2-Bac, and Pig-Bac-2, and methanogen P23-2). Testing of 187 samples showed high fecal indicator bacteria concentrations at both up- and downstream sites. Overall, 40%, 23%, and 61% of samples exceeded state and federal recreational water quality guidelines for fecal coliforms, *E. coli*, and *Enterococcus*, respectively. Pig-1-Bac and Pig-2-Bac showed the highest specificity to swine fecal wastes and were 2.47 (95% confidence interval [CI] = 1.03, 5.94) and 2.30 times (95% CI = 0.90, 5.88) as prevalent proximal down- than proximal upstream of swine CAFOs, respectively. Pig-1-Bac and Pig-2-Bac were also 2.87 (95% CI = 1.21, 6.80) and 3.36 (95% CI = 1.34, 8.41) times as prevalent when 48 hour antecedent rainfall was greater than versus less than the mean, respectively. Results suggest diffuse and overall poor sanitary quality of surface waters where swine CAFO density is high. Pig-1-Bac and Pig-2-Bac are useful for tracking off-site conveyance of swine fecal wastes into surface waters proximal to and downstream of swine CAFOs and during rain events.

*Michael A. Mallin & Matthew R. McIver & Anna R. Robuck & Amanda Kahn Dickens, *Industrial Swine and Poultry Production Causes Chronic Nutrient and Fecal Microbial Stream Pollution*, Water Air Soil Pollut (2015) 226: 407 (on 10 dates during 2013 investigated physical, chemical, and biological pollution of stream waters (Stocking Head Creek & Maxwell Creek, NC) permitted for collectively 108,068 swine & 1,312,500 broiler chickens in a watershed without industrial or municipal point sources of pollution, 67 dwellings yielding 0.03 septic systems/ha, and containing little traditional crop agriculture. Stocking Head Creek is highly polluted by fecal bacteria, by both measures of the NC criteria for impaired waters. Elevated fecal coliform counts occurred during both wet and dry periods indicating it is chronically polluted by fecal bacteria & did not significantly differ between rainy and dry periods, indicating that surface and groundwater pollution occurs independently of stormwater runoff.)

*Arfken, A.M., Mallin, M.A., Cahoon, L.B., Song, B. (2013). *Monitoring Swine Fecal Contamination in the Cape Fear River Watershed Based on the Detection and Quantification of Hog-Specific Bacteroides-Prevotella 16S rRNA Genes*. Report No. 436. Water Resources Research Institute of the University of North Carolina.

*Michael A. Mallin, Mary Grace Lemon, Matthew R. McIver, *Environmental Quality Of Wilmington And New Hanover County Watersheds, 2013*, CMS Report 14-01, Center for Marine Science University of North Carolina Wilmington, Wilmington, N.C. 28409 (May 2014) [HYPERLINK "<http://www.uncw.edu/cms/aelab/>"]

*Michael A. Mallin, Matthew R. McIver, Amanda Kahn Dickens and Anna R. Robuck, Center for Marine Sciences, *University of North Carolina Wilmington Chronic Stream Pollution in a CAFO Rich Watershed in Duplin County, NC* (2013) (in NC Studies folder)

*Harden, Stephen L., USGS Prepared in cooperation with the North Carolina Department of Environment and Natural Resources, Division of Water Resources, *Surface-Water Quality in Agricultural Watersheds of the North Carolina Coastal Plain Associated with Concentrated Animal Feeding Operations*, Scientific Investigations Report 2015–5080 (2015).

Abstract: The effects of concentrated animal feeding operations (CAFOs) on water quality were investigated at 54 agricultural stream sites throughout the North Carolina Coastal Plain during 2012 and 2013. Three general watershed land-use types were examined during the study, including 18 background watersheds with no active CAFOs (BK sites), 18 watersheds with one or more active swine CAFOs but no poultry CAFOs (SW sites), and 18 watersheds with at least one active swine CAFO and one active dry-litter poultry CAFO (SP sites). The watershed drainage areas for these 54 stream sites ranged from 1.2 to 17.5 square miles. Conventional fertilizers used for crop production are the primary source of nutrients at the BK sites. Animal-waste manures represent an additional source of nutrients at the SW and SP study sites. . . . When compared on the basis of land-use type, there was an overall measurable effect of CAFO waste manures on stream water quality for the SW and SP watershed groups. . . . On the basis of the results of this study, land applications of waste manure at swine CAFOs influenced ion and nutrient chemistry in many of the North Carolina Coastal Plain streams that were studied.

*Arun D. Shendrikar, Joette Steger, Hoke Kimball, Wayne Cornelius, Mark Yirka, Robert Bishop and Neil Joyner, *Ambient Atmospheric Ammonia Monitoring Around Hog Farm Industries in North Carolina* (date unknown – likely 2005 or 2006) (conducted by NC DEQ staff. Copy located in NC specific folder. In 1999, the Ambient Monitoring Section of Division of Air Quality (AMS-DAQ) started ammonia monitoring in the light of exponential growth of the regional hog farm industries. “There remains a merit to continue monitoring ammonia for the following reasons:

–It is a well documented fact (through open literature) that agricultural practices have affects on increased ammonia emissions into the environment.”)

*Deanna L. Osmond, Dana L. K. Hoag, Al E. Luloff, Donald W. Meals and Kathy Neas, *Farmers’ Use of Nutrient Management: Lessons from Watershed Case Studies*, Journal of Environmental Quality – Article, Vol. 44 No. 2, p. 382-390 (March 2015).

(Two case studies, one involving field surveys from three nutrient-impaired river basins/watersheds in North Carolina (Neuse, Tar-Pamlico, and Jordan Lake drainage areas). Results indicate farmers generally did not fully apply nutrient management plans or follow basic soil test recommendations even when they had them. Farmers were found to be hesitant to apply N at university-recommended rates because they did not trust the recommendations, viewed abundant N as insurance, or used recommendations made by fertilizer dealers. Exceptions were noted when watershed education, technical support, and funding resources focused on nutrient management that included easing management demands, actively and consistently working directly with a small group of farmers, and providing significant resource allocations to fund agency personnel and cost-share funds to farmers. Without better dialogue with farmers and

meaningful investment in strategies that reward farmers for taking what they perceive as risks relative to nutrient reduction, little progress in true adoption of nutrient management will be made.)

Travis Lee Kleinschmidt, *Modeling hydrogen sulfide emissions: are current swine animal feeding operation regulations effective at protecting against hydrogen sulfide exposure in Iowa?* Dissertation, Univ. of Iowa, 2011. (Models a large swine CAFO using the air quality dispersion model AERMOD and graphs the estimated concentration of hydrogen sulfide of vs. distance from the CAFO. Reading his graph the concentration of hydrogen sulfide at 3 miles is about half that at 2 miles.)

*Yelena Ogneva-Himmelberger *, Liyao Huang and Hao Xin, *CALPUFF and CAFOs: Air Pollution Modeling and Environmental Justice Analysis in the North Carolina Hog Industry*, ISPRS Int. J. Geo-Inf. 2015, 4, 150-171; doi:10.3390/ijgi4010150 (Published: 26 January 2015) (Uses air pollution dispersion model (CALPUFF) to estimate ammonia concentrations at locations downwind of hog CAFOs and to evaluate the disproportionate exposure of children, elderly, whites and minorities to the pollutant in one watershed in North Carolina and compare between 2000 and 2010. Results show that the average ammonia concentrations in hot spots for 2000 and 2010 were 2.5–3-times higher than the average concentration in the entire watershed.)

EPA, Office of Research and Development (ORD), Land Remediation and Pollution Control Division, National Risk Management Research Laboratory, *Detecting and Mitigating the Environmental Impact of Fecal Pathogens Originating from Confined Animal Feeding Operations: Review*, p.3, (2005).

*Ladd AE, Edward B. *Corporate Swine and Capitalist Pigs: A Decade of Environmental Injustice and Protest in North Carolina*. Soc Justice. 2002;29:26–46.

Centers for Disease Control and Prevention 1998. Public Health Issues Related to Concentrated Animal Feeding Operations. Workshop. Washington, DC: National Center for Environmental Health, Centers for Disease Control and Prevention. Available: [HYPERLINK "http://www.cdc.gov/cafos" \t "pmc_ext"] [accessed 26 September 2005].;

Donham KJ. The concentration of swine production. Effects on swine health, productivity, human, and the environment. Vet Clinics N Am Food Anim Prac. 2000;16(3):559–597. [[HYPERLINK "https://www.ncbi.nlm.nih.gov/pubmed/11084993" \t "pmc_ext"]];

National Academy of Sciences 2002. The scientific basis for estimating air emissions from animal feeding operations. Washington, DC: National Academy Press.

Schiffman S, Walker J, Dalton P, Lorig T, Raymer J, Shusterman D, et al. *Potential health effects of odor from animal operations, wastewater treatment, and recycling of byproducts*. J Agromed. 2000;7:7–81.

Burkholder, J. M., Mallin, M. A., Glasgow, H. B., Jr., Larsen, L. M., McIver, M. R., Shank, G. C., Deamer-Melia, N., Briley, D. S., Springer, J., Touchette, B. W., & Hannon, E. K. (1997).

Impacts to a coastal river and estuary from rupture of a swine waste holding lagoon. Journal of Environmental Quality, 26, 1451–1466.

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy** am of legal age and competent to give this declaration. All of the information herein is based on my personal knowledge unless otherwise indicated.

Background

2. I am a **Ex. 6 - Personal Privacy** woman.

3. I live at **Ex. 6 - Personal Privacy** with my husband. We have lived at this address **Ex. 6 - Personal Privacy** We own our home.

4. I have lived in eastern North Carolina all of my life. I grew up just two doors down from where I currently live.

5. I recently retired from **Ex. 6 - Personal Privacy** North Carolina. I worked in the **Ex. 6 - Personal Privacy**.

6. I attend the **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy

Experience Living Near Several Hog Facilities

7. There are several facilities that are very close to my home. One is less than a mile away and there are others within two miles. Maps showing my house, the church I attend, and the nearest hog facility are attached as Exhibits 1-2.

8. Beyond my house, in my community, there are even more hog facilities. There used to be nine hog facilities on Five Mile Road, which is also called Little Kelly Road, between Route 210 and Highsmith Road. I'm told now that there are only six hog facilities. It's still a lot of hog facilities on a small stretch of land. A map showing the six hog facilities in my

Exhibit 25

immediate community is attached as Exhibit 3. A map showing the hog facilities within a 3 mile radius is attached as Exhibit 4.

9. The biggest problem with living near the hog facilities is the smell. I like to be outside. We have a pool, but the stench is so bad that it's not pleasant to be outside and we can't enjoy our pool. If you sit on the front porch, and the wind goes in the certain direction, the stench can hit you full force. We have to be careful to plan our time outside to try to avoid the smell.

10. Because of the smell, there's no such thing as putting the windows down. There's no way to know when the smell will come and hit the house full force.

11. It always smells, but when the hog facilities spray the liquid on the field, there's an extra stench.

12. The smell is also a problem for us at church. We don't like to have the windows open at church for fear of the smell from the hog facilities. We don't like to leave the doors of the church open for the same reason. Because of the smell, we hold events inside. We'd like to have events outside, like a fish fry, but the smell would prevent us from enjoying being outside.

13. My church and the surrounding hog facilities are shown in Exhibit 1, referenced above.

14. I have experienced the smell from these large industrial hog facilities since they came to North Carolina in large numbers. I have always lived in this community and always have been exposed to their pollutants and smell. When I was growing up, I lived two doors down from my current home. The industrial hog facilities are different than the small hog farms of the past. My stepfather had a small farm with hogs, and it didn't smell anywhere near what these big facilities smell like.

15. In addition to the smell, I am also concerned about run-off, especially when the facilities spray the waste on the field. I am concerned that run-off will affect the water. I am on county water now, but before I had well water. I had my water tested about ten years ago. The tests didn't appear to show any impacts from the hog waste, but I was still concerned that runoff could affect water quality. When the county came through with the water, we paid \$120 to connect to give us piece of mind. County water has been a Godsend. I feel much more comfortable drinking the water. I am not as worried about pollution from the hog facilities.

16. I have allergies, but I can't be sure whether they have been affected from the hog facilities.

17. My community has suffered a lot of health problems. For a while, it seemed like all we had in this neighborhood was cancer. My Ex. 6 - Personal Privacy and several others out of the neighborhood also passed away from cancer. People who live in this neighborhood have been suspicious that there were so many cancer patients in this area. We wonder if the incidence of cancer could be related to our water. We never had the water throughout our whole area tested, but it has been a topic of conversation among some people in the neighborhood. It seems like fewer people are dying of cancer these days, but I wonder if we might see bouts of cancer again.

18. I think there has to be some other way for the hog facilities to get rid of their waste, and to get rid of the smell.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in

Ex. 6 - Personal Privacy

North Carolina on

Ex. 6 - Personal Privacy

, 2014

Ex. 6 - Personal Privacy

EXHIBIT 1

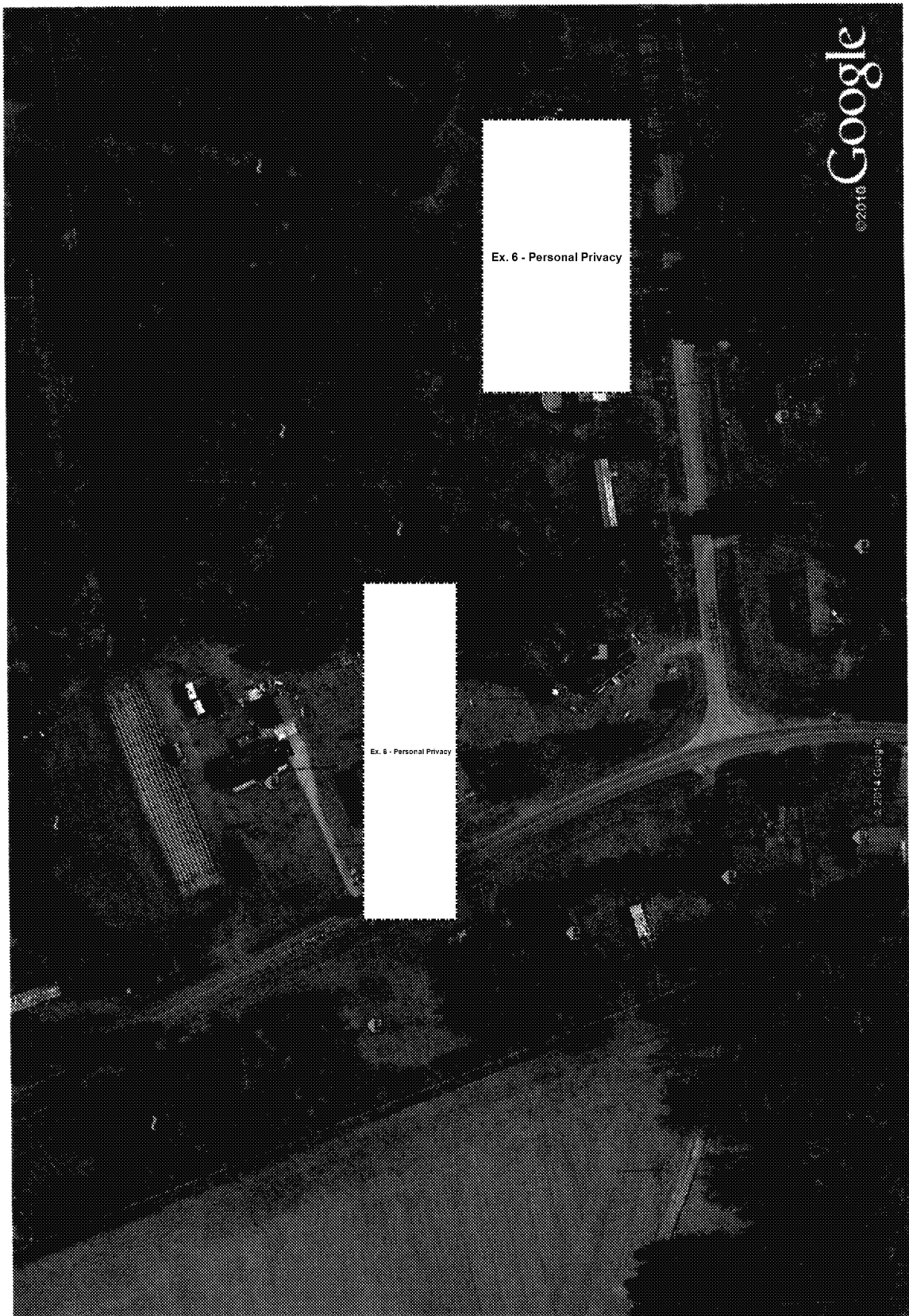


EXHIBIT 2

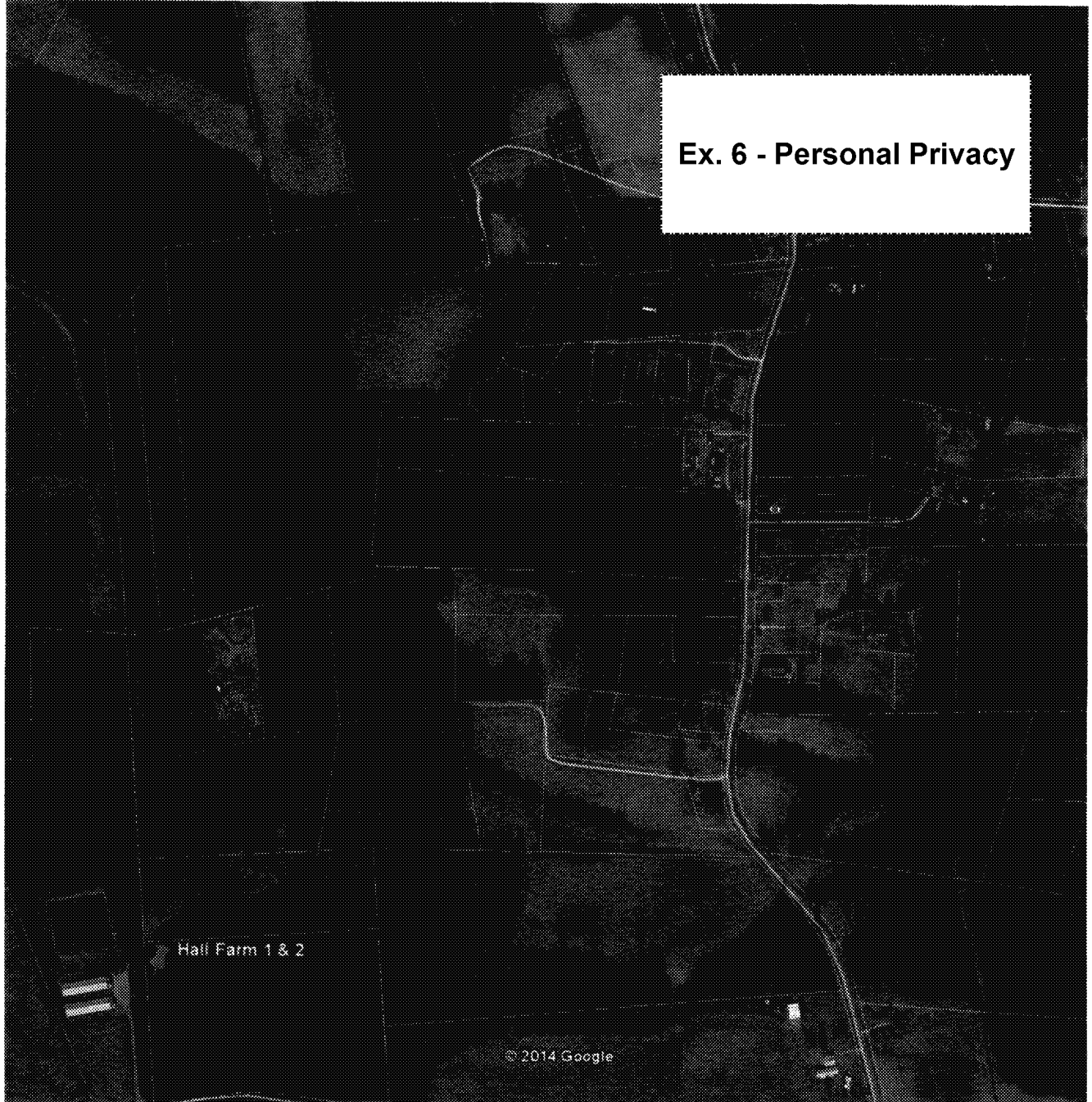


EXHIBIT 3

Ex. 6 - Personal Privacy

© 2014 Google

Ex. 6 - Personal Privacy

NOTE: Map shows locations of swine facilities operating under the General Permit, as indicated in NC DENR's spreadsheet of permitted animal facilities,

Exhibit 26

I have reviewed my declaration dated Aug. 20, 2014 consisting of 17 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on 11/15/16.
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy** I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge unless otherwise indicated.

Background

2. I live at **Ex. 6 - Personal Privacy** County, North Carolina. (See Attached Map). **Ex. 6 - Personal Privacy** I live here with my mother, **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy I have lived at this address, on and off, **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy

3. The nearest hog farm from here is about half a mile away.

4. I also lived at **Ex. 6 - Personal Privacy** there were hog farms near there as well. I lived at that address **Ex. 6 - Personal Privacy** The closest hog farm to that location was a half-mile away.

5. I am a **Ex. 6 - Personal Privacy** I work part-time, about 20 hours a week. I travel from one place to another for my work and I encounter hog farms when I travel.

Experience Living Next to the Hog Farm

6. I have health conditions related to hog farms. When the fields are being sprayed, my allergies and sinuses act up. I get sick to my stomach and throw

up. When the smell starts, I have to turn on the air conditioning, keep the windows up, and I can't hang my clothes outside. It's an awful smell. The smell stays around for four to five days when it's raining. I try not to go out when it's like this, but I have to because I have to go to work.

7. I have talked to my family and friends about how I feel about the spraying. I tell my mother that I can't stand this smell. I have to shut myself into the house because every time I come outside, it makes me want to throw up.

8. I have concerns about air quality. I think that the air we breathe, which is polluted from the hog farms, could cause health problems and we would not know until later that it caused our health problems. I am concerned for the children in my family. I worry about my grandsons. One is eight years old and the other is eighteen. I feel like their health is at risk because they are exposed to hog farms. One lives in town, Ex. 6 - Personal Privacy and the other lives in Ex. 6 - Personal Privacy. They come to visit occasionally.

9. We have concerns about the property value. I think it would be difficult for my mother to sell the house because of the problems from the hog farms and the chicken farms.

10. The chicken houses are really bad. There is one that is very close to the house—we can see it from our window. The chicken houses smell bad because of the chicken litter piled up. They gather it up in the truck and they go out and

spray it up and down in the fields. You know when they're spraying it over the fields because everything is going in your nose if you have your window down. They spray it when it's still dry so it ends up blowing in your house, in your car, on your clothes, and in your nose. I stopped drying my clothes outside and now I have to spend money to dry my clothes. I have to spend money to spray my house because of the odor. I have to spend more money keeping the air conditioner on so I don't have to smell that bad smell.

11. I only dry my clothes out on the line in the winter because the smell isn't as bad from the hogs and the chickens. It's still there in the winter time, but it's not as bad because they're not producing as much. In the spring, the summer, and the fall, it just stinks—the smell from the hog and chicken farms is sickening. In the summertime, there's more heat and the wind blows and it carries the smell.

12. In the summer, the smell from the hog farms affects how much time we spend outside. We'd like to have cookouts or play outside with my grandkids, but when they start spraying my grandson will say, "It stinks out there. I'm ready to go home." We have to find somewhere to take him so he can play or we have to go inside. We would have to go somewhere like Ex. 6 - Personal Privacy or we'd have to spend money to do activities inside to keep him from breathing that bad air.

13. The smell is much worse than it used to be because it seems like they're spraying hog waste and spreading more chicken waste than they used to.

14. I've lived here most of my life and it didn't use to be this bad. The Black farmers used to have their hog pens and their hog pastures far away in the woods. Now these new farmers have them right next to the road where everyone can see them—and smell them. I started to notice the hog farms being closer to where we lived about ten years ago. I started noticing the spraying when I started smelling it. This was when my husband and I moved back from Ex. 6 - Personal Privacy ten years ago.

15. The only time I can go outside is when I go within the city limits. Then I can go outside and go to a cookout with family or friends. We can't have cookouts around here because we have to wait three or four days after they spray. We don't know when they're going to spray, but we do know that we have to wait that long before we can do anything because the smell is unbearable. We can't have cookouts when the smell is bad because of the flies. The flies are really bad for those three days after they spray. They cover the windows and we have to make sure we shut the door and there aren't any holes in the screen door because the flies will come in. It's a nuisance to deal with the smell, the flies, and the throwing up, because the smell is so sickening. We can't sit out on our porch and laugh and talk with family.

Advocacy Against Industrial Hog Farms

16. I have never tried to advocate with others to make this situation better. I'm going to start going to Rural Empowerment Association for Community Help (REACH) meetings Ex. 6 - Personal Privacy They advocate to make life better for people that live around hog farms.

17. I'm worried about my grandchildren because their immunity may not be as strong as ours is. They could get sicker than me from the hog farms.

18. I wish that they could control the smell. I would like to go back to my normal life and live comfortably.

19. I believe that industrial hog farming is a civil rights issue. The farms are located in Black neighborhoods and poor areas.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed Ex. 6 - Personal Privacy North Carolina on August 30, 2014

Signed: **Ex. 6 - Personal Privacy**

Address:

Ex. 6 - Personal Privacy

Addressee:

Ex. 6 - Personal Privacy

Map radius: Approximately 1 mile

Source: Google Maps



I have reviewed my declaration dated _____ consisting of _____
pages, and I affirm that the statements contained therein are still true and correct to the best of
my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on 11-14-2016
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

DECLARATION OF Ex. 6 - Personal Privacy

1. My name is Ex. 6 - Personal Privacy I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge and experience unless otherwise indicated.

Background

2. I am a Ex. 6 - Personal Privacy Since 2002, I have lived at Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy Before that, I lived in the Ex. 6 - Personal Privacy area. As a teenager, I split my time living between Ex. 6 - Personal Privacy County.

Experience Living Next to Hog Facilities

3. My home is surrounded by hog facilities and sprayfields. The map attached as Exhibit 1 shows that there is a hog facility within a mile of my home. The map attached as Exhibit 2 shows that there are about two dozen hog facilities within a three-mile radius of my home.

4. I have been living near hog facilities and sprayfields Ex. 6 - Personal Privacy I don't currently work so I am at home most days and I experience the effects of the hog facilities frequently.

5. There often is a bad smell near my home from the hog facilities, sprayfields, and trucks that carry the dead animals from the hog facilities. The smell is strongest during the summer when it is hot outside or after a truck carrying dead hogs passes by. I see dead hog trucks every day. A foul smelling liquid frequently spills out of these trucks onto the road. Sometimes I see guts from dead hogs on the road.

6. Because of the smell, my wife, daughter, and I do not spend much time outside. We don't hang our clothes outside to dry because we are concerned the smell will get into the clothes and stay in them. We always keep the windows in the house closed and run the air conditioning as needed throughout the year so the smell doesn't get in our house. If we open the windows, the stink from the hog facilities can get inside and into our clothes.

7. I constantly see flies around my home. I think they are attracted to the stink from the hog facilities. All year, but even more in the summer, when it's hot and the smell from the hog waste is strongest, we have to use fly swatters and Raid insect spray against the bugs. I have cousins who live across from a hog facility and the flies there are so thick in the summer when the odor is the worst. They can't get rid of them.

8. I believe the hog facilities spray their waste in the morning, but I never can tell what time in the morning they are going to do it. The facilities don't notify us when they are going to spray. Sometimes I see a brown-colored fog and I think it is from the sprayfields shooting hog waste into the air.

9. My Ex. 6 - Personal Privacy She takes medication for the asthma. Her doctor hasn't told me what he thinks caused her asthma, but being around the sprayfields aggravates her symptoms. We don't let our Ex. 6 - Personal Privacy play outside at home even though she'd like to. She plays Ex. 6 - Personal Privacy at school and likes being outside. Her asthma isn't always a problem, but we ask her to stay inside at home to try to prevent her asthma from being triggered from the odor and hog waste in the air from the hog facilities and the sprayfields.

10. Before I moved back down here Ex. 9 - Personal Privacy I had some eye allergies, but now I have worse eye allergies and nasal allergies. I have to take a nasal spray and prescription medication to help with my allergies. I believe my new allergies developed because of the waste sprayed into the air. My wife also has allergies. I don't know how long she has had these allergies. She just takes over-the-counter medicine to help with them. The dust that is kicked up from the hog trucks also aggravates her allergies and she has to take more medicine.

11. I think the poultry facilities also contribute to the bad smell. It seems the poultry facilities are a half-mile to one mile away from my house. I think they dump their waste less frequently than the hog facilities do, but when they do it smells terrible, too. With the smell from the poultry facilities and the hog facilities, it's very hard to find a time when my family can be outside.

12. We used to use a water pump to get my water, but now my home is hooked up to county water, which costs \$23-\$33 each month. The County did not explain why it made residents switch to their system, but I think it is because of hog waste seeping from unlined lagoons into the groundwater, getting into people's wells. I was concerned that the waste from the hog facilities could get into our water and make my family and people in my community sick.

13. The County puts a lot of chlorine in the water. I can smell and taste the chlorine in the water. At times, the water looks milky and it tastes like rust. I do not feel good drinking the water. Sometimes, I'll boil the water to get it to look and taste right. I think the County puts so much chlorine into the water to disinfect it. I'm not sure why they need to disinfect the water, but I am concerned that it might be because the water is

contaminated by the hog facilities. I believe that too much chlorine is not healthy for you.

14. A water cooler company salesperson came to my home recently. He was able to treat the water in some way to make it appear cleaner, but I decided not to purchase the company's services because I feared I would not be able to pay for it. I'd like to be able to provide clean water for my family, but it's just too expensive. I'm upset that I have to pay for County water that is not even good enough.

Experience Working for a Hog Facility

15. I used to work as a truck driver for Nash Johnson and Ag ProVision. I transported dead animals. As part of that job, I had to lift hog boxes of dead hogs onto the trucks. I would go to the hog facility and go around to find the dead box. I would pull up to a box, and it would be full of dead hogs or sometimes chickens. I am not sure why chickens would sometimes be mixed in with the hogs. The boxes were made out of metal and were about the size of a full-size car. The boxes had holes in the bottom on it, so there were plenty of times where a foul-smelling liquid from the boxes would splash and drip onto me. When it rained, water and waste dripped out of the boxes. I would put chains on each side of the box and raise it up with a motor to empty the box into the truck. There was a net across the truck bed that catches the bodies of the dead hogs. The Nash Johnson trucks were worse than the ones at Ag ProVision because there was no shield on the sides of the trailer to keep any liquids from leaking onto the road.

16. Sometimes the companies I worked for hauling dead animals had me wear a uniform. They gave me a raincoat to protect against the rain. Other than rubber gloves or the raincoat, they gave me no protective equipment when I lifted the dead boxes.

17. When I transported the dead bodies of hogs, I delivered them to Valley Proteins, Inc., a rendering operation that has several North Carolina locations. Sometimes, if the dead hogs were too rotten, Valley Proteins would turn me away. If I was turned away, sometimes the dispatcher at the company I was working for directed me to dump the dead hogs into a particular open-air hole in Rose Hill, North Carolina. The hole was filled with the bodies of dead hogs, and it smelled so bad. I don't know who maintained that open-air hole.

18. The trucks I drove were always leaking with a foul-smelling liquid coming from the decaying hogs, which would fall out onto the road. I still regularly see foul-smelling liquids on the roads. I recognize it as liquids that have come out of trucks carrying dead hogs.

19. I believe there are some people in the hog industry and the government that are interested in keeping things the way they are. I also believe that the government does not inspect trucks carrying hog waste in the way they are supposed to. The police never inspected a truck I drove. If the police stopped me when I had a truck full with dead hogs, the state troopers would tell me to have a nice day and let me go, even if the truck was leaking.

20. I believe hog facilities are concentrated near communities of color, although I know other people are affected as well. I believe the people running these facilities feel that communities of color won't say or do anything to stand up to them. I think the effects from these hog facilities are making people here sick.

21. I don't believe the people running those hog facilities care about us. I think they're just worried about maintaining their way of life. I don't think they care about the people living here and who they're hurting.

I declare under penalty of perjury that the forgoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in Duplin County, North Carolina on 8-12, 2015.

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

I have reviewed my declaration dated _____ consisting of _____
pages, and I affirm that the statements contained therein are still true and correct to the best of
my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on 11-14-2016
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

I have reviewed my declaration dated August 30, 2014 consisting of 7 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov 15, 2016
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated August 31, 2014 consisting of 4 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date. (X)

Executed in Duplin County, North Carolina, on 11-15-16.
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

Name (printed) J

(X) I no longer work

Ex. 6 - Personal Privacy

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy** I am of legal age and competent to give this declaration. All of the information herein is based on my personal knowledge unless otherwise indicated.

Background

2. I am **Ex. 6 - Personal Privacy** I currently reside at **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy North Carolina, less than one mile from my birthplace. I purchased my current home **Ex. 6 - Personal Privacy**

3. As is shown in the map attached as Exhibit 1, there are four large hog facilities less than a mile from my home. Within two miles, there are at least 10 hog facilities, as is shown in the map attached as Exhibit 2. I also have seen poultry facilities near my home.

4. Along with my **Ex. 6 - Personal Privacy** in my current home. However, because of our concerns for the hog facilities' impact on our children's health, I have assisted my children in relocating to **Ex. 6 - Personal Privacy**

5. In **Ex. 6 - Personal Privacy** I joined the Rural Empowerment Association for Community Help ("REACH") because I am frustrated with my lack of clean air and clean water. Soon after joining REACH **Ex. 6 - Personal Privacy** As **Ex. 6 - Personal Privacy** I have supported REACH's work against the hog facilities, including REACH's work sampling local waters for contamination and screening schoolchildren for asthma.

Experience Living Near the Hog Facilities

6. My home is a **Ex. 6 - Personal Privacy** home. Even when I close all the windows and doors, I cannot keep the horrible smell from the hog facilities outside.

7. Every day, at least nine trucks carrying hogs travel back and forth to the hog facilities near my home. I also have seen other trucks going to or from the facilities. I think these other trucks might carry away dead hogs. All of the trucks carry an awful smell with them.

8. The trucks recently increased their presence during the morning hours. The stench carried by the trucks lingers, covering the clothing of schoolchildren waiting at bus stops. I know from my work with REACH and my own health challenges that the poor air also increases their risks for asthma and other respiratory diseases.

9. The roads in front of my home often are covered in a foul smelling liquid, which I think is hog waste that has been spilled from the trucks that drive by moving the hogs from one facility to another. The spilled liquid persists until the rain washes it off the road, but the horrible odor returns as soon as the ground is dry.

10. The trucks run at all hours of the day and are loud nuisances outside my home. The trucks can be heard in addition to the roaring fans at the hog facilities. The fans run at all hours of the day but more often in the summer.

11. The hog facilities near my home sometimes spray the hog waste onto fields. The smell becomes noticeably stronger once the spraying begins. No warning is ever given before the hog facilities begin to spray the waste.

12. Because the smell from the hog waste and the trucks is so strong, I no longer can hang my clothing out to dry outside my home. Even when I wash and dry them indoors, I sometimes must rewash them and must use a special detergent to remove the smell.

13. I wish I had moved a long time ago because of the inconveniences of the hog facilities and the risks to me and my family's health when they lived here with me.

14. The smell from hog waste spray not only affects me at home, it also affects me when I visit my deceased relatives at **Ex. 6 - Personal Privacy** located just

Ex. 6 - Personal Privacy from my home. The cemetery is accessible only by taking an unmarked country road through the woods. I visit the gravesites of my grandmother, her mother, and other relatives who are buried there nearly every week. Because the cemetery is very close to a hog farm and near the fields where the waste is sprayed, it often smells of hog waste. I do not visit as often as I would like, and I frequently cut my visits to the cemetery short, because I cannot stand the unbearable smell from the hog facilities. My breathing problems also get worse if I am there for too long. A map showing the **Ex. 6 - Personal Privacy** and the nearby hog farm is attached as Exhibit 3.

Outdoor Recreation Near the Hog Facilities

15. I am a hunter and a fisherman. I used to fish at Northeast Cape Fear River, but I had to stop eating the fish because I began seeing dead and deformed fish in the River. Some of the fish had boils and lesions on them. I was concerned that the problems in the River were caused by the hog facilities, so I stopped fishing in the area. I cannot fish in the creeks near me because I have noticed problems there, also.

16. I also enjoy walking through the woods behind my home. I cannot do so as often as I would like to because of the unbearable smell from the hog facilities on the other side of the woods.

Personal and Family Health

17. While stationed at **Ex. 6 - Personal Privacy**, I was exposed to an experimental form of **Ex. 6 - Personal Privacy**. my unit was asked to collect targets in an area where the **Ex. 6 - Personal Privacy** was exploded only two days earlier. As a result, and as doctors predicted, I lost my

Ex. 6 - Personal Privacy

18. Since my exposure **Ex. 6 - Personal Privacy**, I have had trouble breathing. My symptoms are worse when I am near the hog facilities. When I go to the beach where there is no spraying, my breathing problems are a bit better than when I am around the facilities when they are spraying.

19. I suffer from respiratory issues as well as high blood pressure and high cholesterol. Even though I do not drink or smoke, my conditions are worsening. My doctor in **Ex. 6 - Personal Privacy** diagnosed me with asthma and prescribes four daily medications and three inhalers for my health problems, which cost me nearly \$50 per month.

20. I began seeing my doctor in **Ex. 6 - Personal Privacy** after I was dropped from the supplemental insurance to my Medicare plan. That plan provided for a nurse to transport me to the Veterans Affairs clinic. Since losing the coverage, I now must find someone willing to take me to the doctor in **Ex. 6 - Personal Privacy**. I don't like driving because **Ex. 6 - Personal Privacy** in an accident a few years back.

21. I currently see my doctor every three months. Sometimes my conditions worsen and I need to go sooner, but it's hard to get an appointment. I have had to wait several weeks to get in to see the doctor.

22. Over the previous three years, I have sought emergency room care twice each year because I suffered sudden severe flare ups of my respiratory problems. I think my problems were related to the horrible stench and pollution from the hog facilities.

23. Now that I no longer have the supplemental insurance, I worry about the possible medical expenses I may face if I have to seek emergency care again in the future.

24. My oldest daughter also had health problems when she lived close to the hog facilities. She developed severe sinus and allergy issues around the time she turned 16. While our other children played outside, my oldest daughter often had to stay inside because of her sinus issues. She suffered nose bleeds, sinus draining, and anemia and required five to six trips to the emergency room while in high school. No medical diagnosis was given and her symptoms persisted.

25. My oldest daughter currently works Ex. 6 - Personal Privacy She has missed a lot of work because of the health problems that might be related to the hog facilities. For example, sometimes, on her way to work, she gets caught behind trucks carrying the hogs and it makes it hard for her to breathe. Her symptoms improved, however, when she temporarily moved out of the area and out of state. I believe her symptoms improved because she moved away from the air pollution from the hog facilities.

26. I am thankful for life but it is useless without access to clean air and clean water, ^{and environment} Though it may be too late to help me, I want to have clean air and water for my children and others. To have clean air and water, something must be done about the hog facilities.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in Duplin County, North Carolina, on 7-29, 2015.

Ex. 6 - Personal Privacy

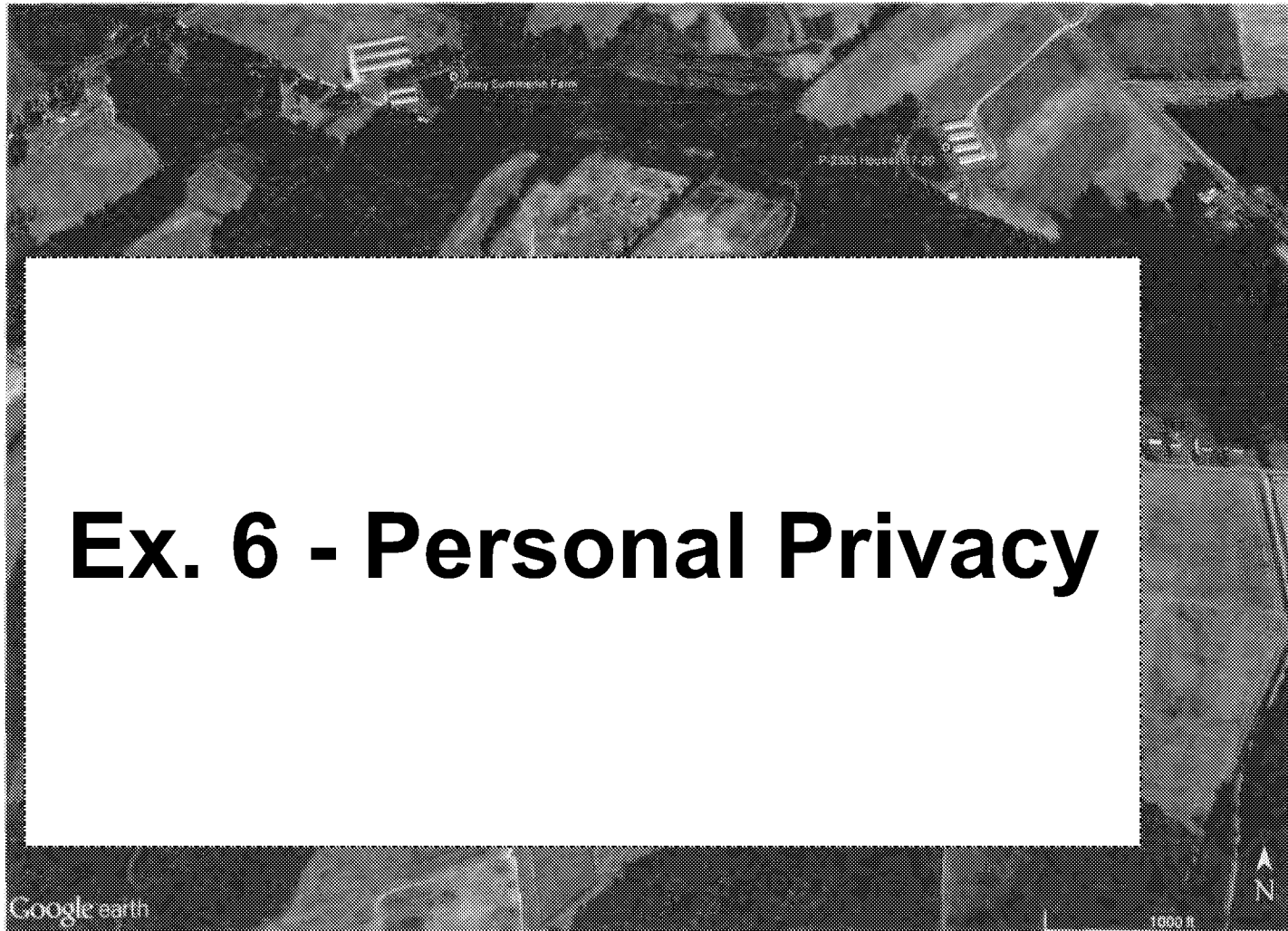
I have reviewed my declaration dated _____ consisting of _____
pages, and I affirm that the statements contained therein are still true and correct to the best of
my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on _____,
Date

Ex. 6 - Personal Privacy

Name (printed)

EXHIBIT 1

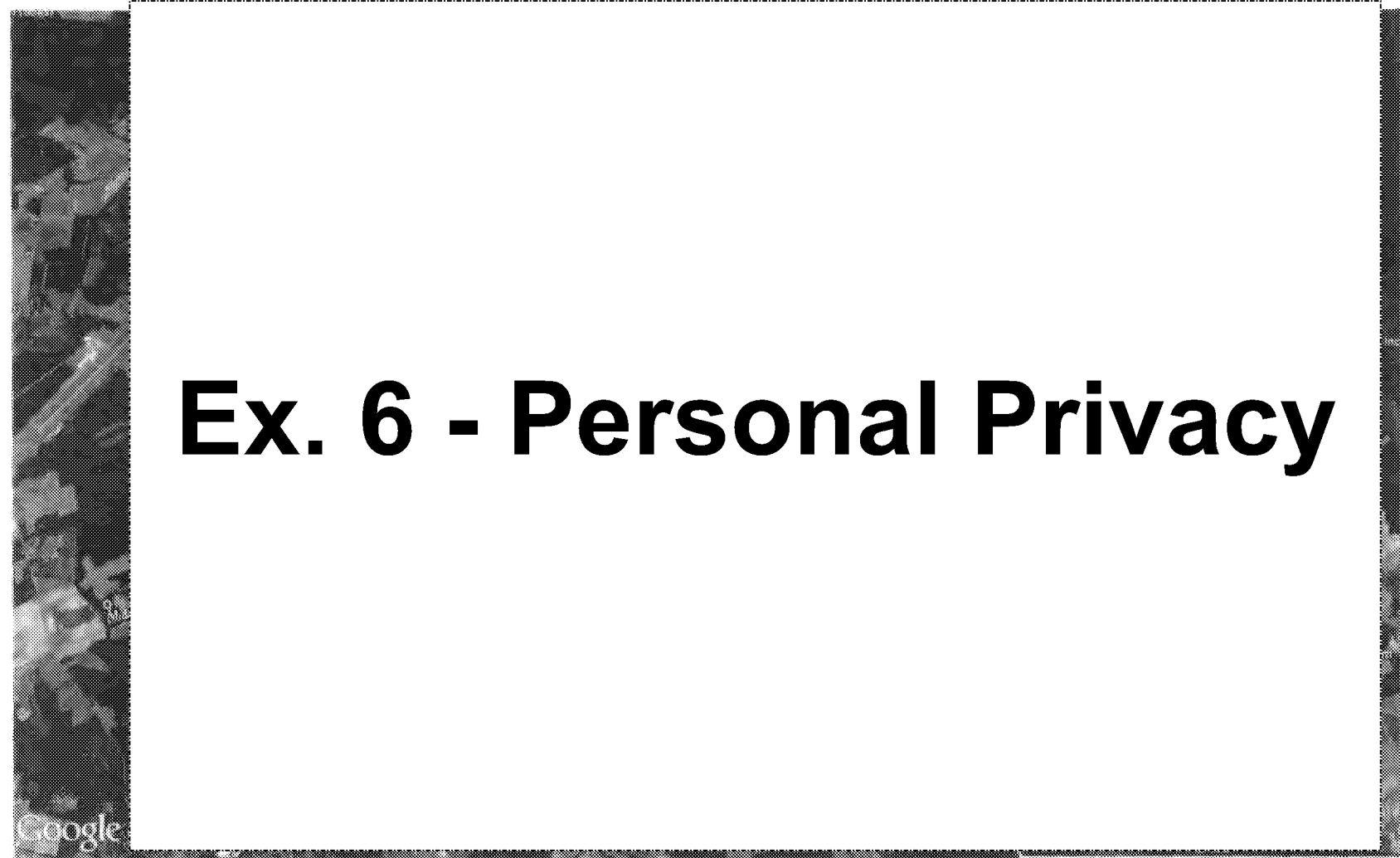


NOTE: Map shows locations of swine facilities operating under the General Permit, as indicated in NCDENR's spreadsheet of permitted animal facilities, updated January 5, 2015.

Ex. 6 - Personal Privacy

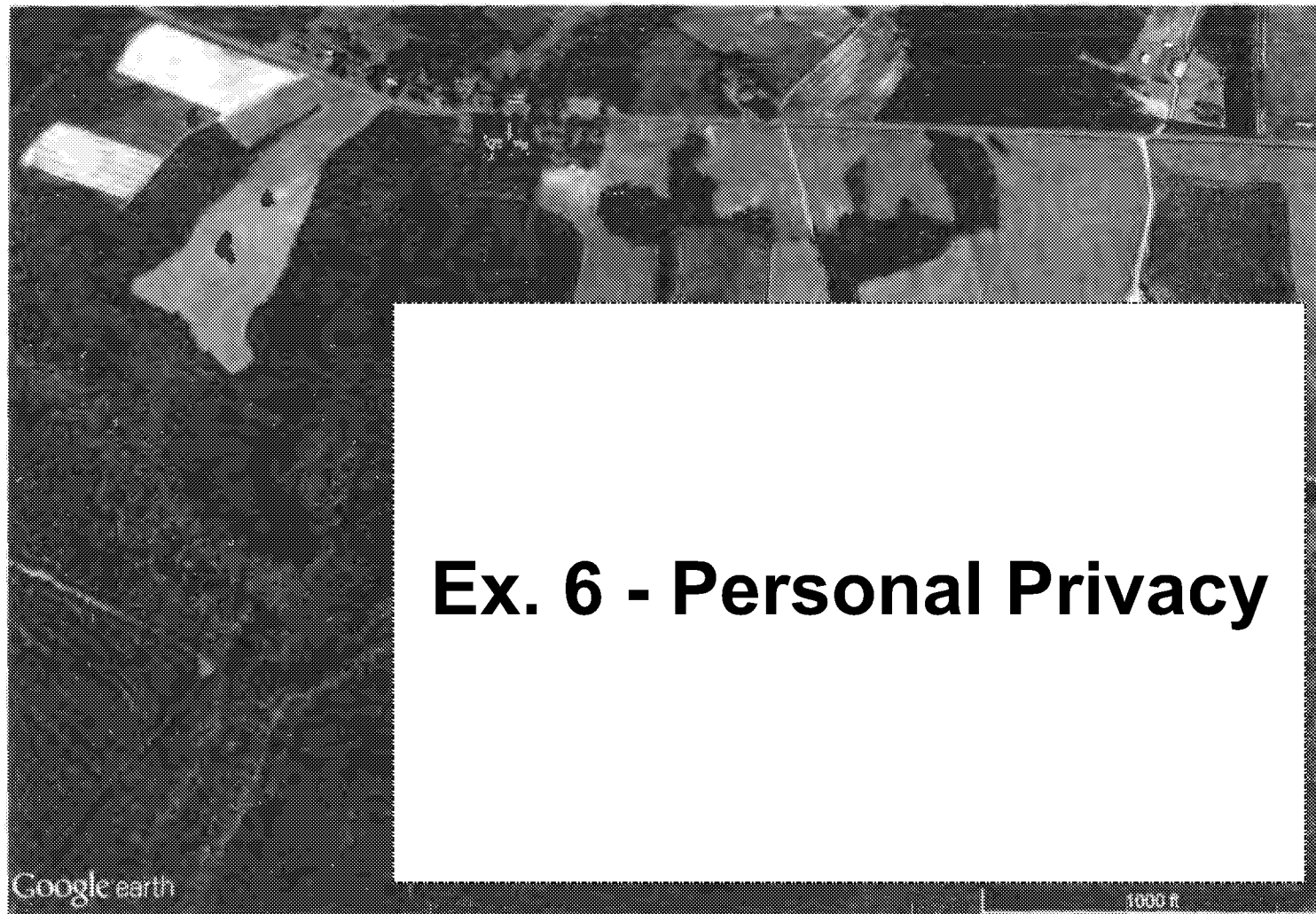
Ex. 6 - Personal Privacy

EXHIBIT 2



NOTE: Map shows locations of swine facilities operating under the General Permit, as indicated in NCDENR's spreadsheet of permitted animal facilities, updated January 5, 2015. Circle shows permitted swine facilities within a 2-mile radius of home, as calculated by Google Earth Pro. The map shows at least 10 swine farms operating under the general permit within this radius.

EXHIBIT 3



NOTE: Map shows the location of a swine facility operating under the General Permit as indicated in NCDENR's spreadsheet of permitted animal facilities, updated January 5, 2015, and the

Ex. 6 - Personal Privacy

I have reviewed my declaration dated April 18 / 2014 consisting of 15 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on 11/14/16.
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated August 30/2014 consisting of 5 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on 11/14/16
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated August 30, 2014 consisting of 4 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on 11/14/16.
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated Aug. 30 2014 consisting of 8 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov. 14/2016.
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated August 30, 2014 consisting of 7 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov 14 / 2016
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated April 17, 2014 consisting of 5 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov. 14/2016
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy**. I am of legal age and competent to give this declaration. All the information herein is based on my own personal knowledge unless otherwise indicated.

Background

2. I am a **Ex. 6 - Personal Privacy** woman. I currently live at **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy** North Carolina. Attached to this declaration as Exhibits 1 and 2 are satellite maps showing my home and surrounding swine facilities within a one and three mile radius, respectively. As you can see from Exhibit 1, there are at least 5 swine facilities located within a one-mile radius of my home. Under their permits, these facilities could collectively house almost 20,000 animals and have eight lagoons. Looking within the two-mile radius of my home, the permitted facilities could collectively house over 80,000 hogs. There are at least 30 swine facilities within a three-mile radius of my home.
3. I work part-time as **Ex. 6 - Personal Privacy**. I don't work many hours because of my disability. I have a **Ex. 6 - Personal Privacy** which I understand to be related to sick sinus syndrome, which I believe was caused by pollution from the swine facilities, including the sprayed hog waste. I did not have trouble with my sinuses or with breathing before the industrial hog farms moved in near my home. I have had the **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy** I receive Social Security disability benefits because of my condition.
4. I grew up in my house at **Ex. 6 - Personal Privacy**, which my mother continued to live in when **Ex. 6 - Personal Privacy**. All of the surrounding land also was owned by black people at that time.

5. I came back to North Carolina in

Ex. 6 - Personal Privacy

My mother

Ex. 6 - Personal Privacy

and

renovated it. As shown in attached Exhibit 3, my home is within fifty feet from a sprayfield connected to a hog facility. When my family and I first lived in the area, we believe that some or all of the industrial hog facilities were not yet in existence. Across from my house were

Ex. 6 - Personal Privacy

I believe construction of the industrial hog houses closest to my home was completed in

Ex. 6 - Personal Privacy

Experience Living Near Hog Farms

6. I drove a truck for

Ex. 6 - Personal Privacy

At that time, there were no big

industrial hog houses, but there was a much smaller hog house way back in the woods. I would carry the feed and have to put it in the bins.

7. The farms smelled back then too, but nothing like the smell the current industrial operations produce.

8. Today, as you can see on Exhibit 3, there are sprayfields less than 50 feet from my front door. The spray just shoots out when the mechanized, high-volume sprayer is running, at times getting waste on my lawn, car and home. Attached Exhibit 4 is a CD containing a video of the sprayers nearest my home.

9. They typically spray in the morning and again at night, but as far as I know there is no set spraying schedule. The hissing sound of the sprayer and the blinking light that is visible through my windows when they spray at night wakes me up at night.

10. The smell from the hog waste is like something has been dead for a while. Like the body's been dead and decomposed. It's a horrible odor like nothing else I've smelled before.

11. Once the odor gets on you, you have to keep washing and washing. If you walk past a hog truck, you don't have to touch it but the smell gets on your skin.

12. **Ex. 6 - Personal Privacy** whose operations are right next door to me (at least one of his sprayfields is across the street from me). He has hogs (which I

understand are owned **Ex. 6 - Personal Privacy** I think he built

about **Ex. 6 - Personal Privacy** maybe a year ago. They are **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy but the poultry waste is spread around outside, too. The stench from the poultry houses and waste is not as bad as that from the hog facilities, but it still smells horrible.

13. The buzzards that congregate around my house because of the hog facilities are a problem, too. There are a lot of them on this road because of the dead box (where the facilities deposit the dead hogs) down the street, right by the cemetery. It's probably less than half a mile away. The odor from the dead boxes is even more horrible than from the sprayers and the facilities where the live hogs are kept.

14. In about **Ex. 6 - Personal Privacy** which is a bacteria that settles in the lungs. It's a chronic disease that I suffer from in addition to the sick sinus syndrome, and I have to take steroids to treat it. My lymph nodes and my chest swell. I get short of breath. I think this condition has something to do with the pollution from the hog facilities, particularly the sprayfields, because I never suffered these symptoms before the sprayfields came. I still take the prednisone now **Ex. 6 - Personal Privacy** And lately, I have had to go to the eye doctor to get steroids for eye bacteria.

15. Before the facilities and sprayfields moved in near me, I used to have a garden and hang clothes on the line. I don't have a dryer, so now I have to either go into town to dry my

clothes or try to avoid times when the sprayer might be operating. The laundromat is ten to twelve miles away.

16. I used to have cookouts, but not anymore, because of the constant threat of the likelihood that there will be a stench from the hog facilities and sprayed waste so close to my home.
17. Now I keep my windows closed virtually all the time because of the spraying. I would rather have them open because I like a breeze, but the stench and the spray is too awful to bear.
18. I stay in the house now as much as I can because of the hog facilities and spraying. I would rather be able to walk and garden outside. If I go outside when they are spraying, I run to get in my car to go to work. There are so many sprayfields on this road that I smell the hog waste odor all the way to Warsaw.
19. Because of the pollution from the hog facilities, I feel like I don't have a life. I'm engaged to be married, and one day I would like to be walking outside with my husband and say "ooh, smell this fresh air!"

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in Waxhaw, North Carolina on Oct 27, 2015.

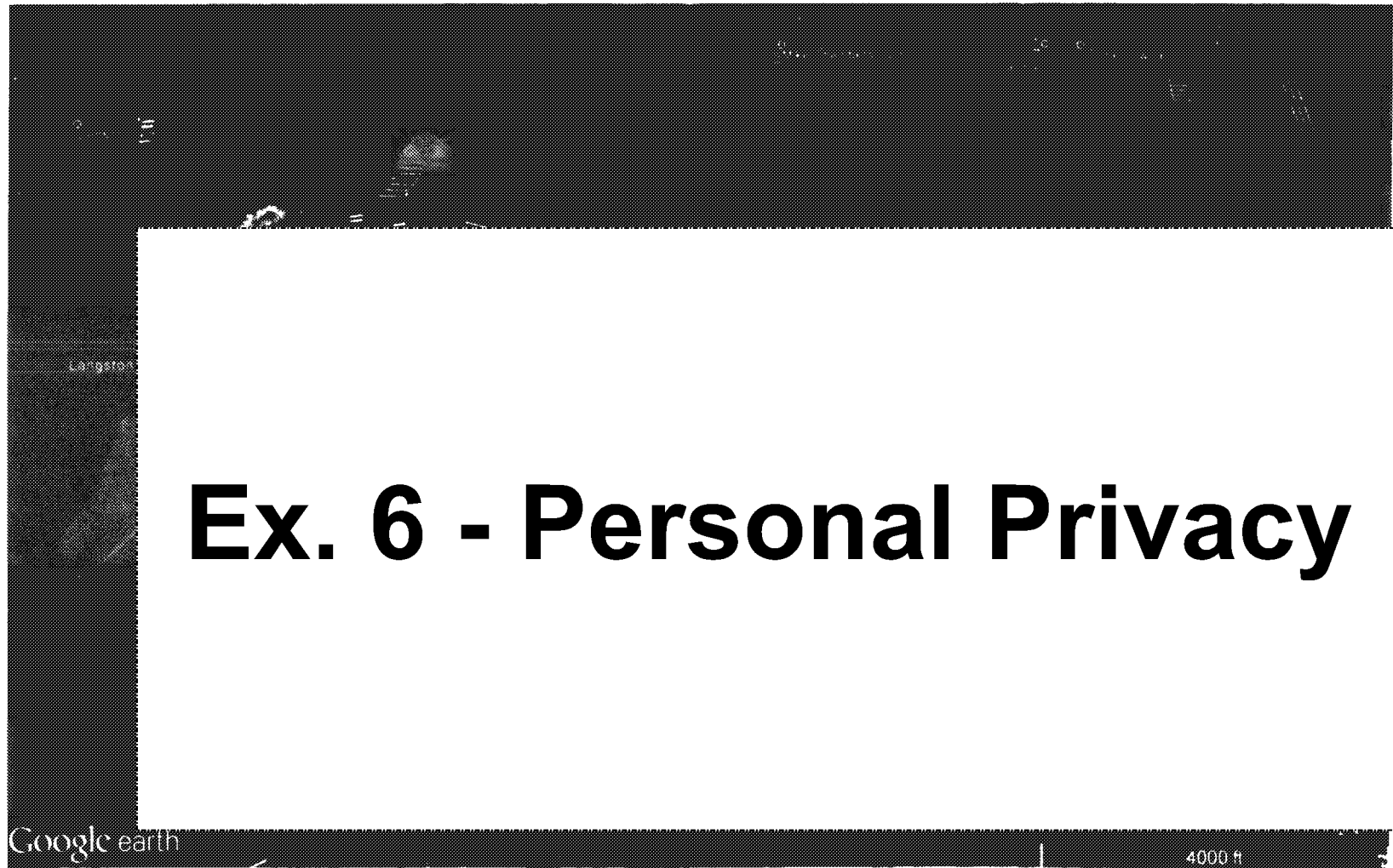
Ex. 6 - Personal Privacy

René Miller

Ex. 6 - Personal Privacy

Nov. 14 2016

EXHIBIT 1



NOTE: Map shows locations of swine facilities operating under the General Permit, as indicated in NCDENR's spreadsheet of permitted animal facilities, updated January 5, 2015. Circle shows permitted swine facilities within a 1-mile radius. Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy is calculated by Google Earth Pro. The map shows that there are five facilities whose permitted coordinates are within 1 mile of her home. Those five facilities are permitted to house almost 19,355 animals and have a combined eight lagoons to store animal waste.

EXHIBIT 2

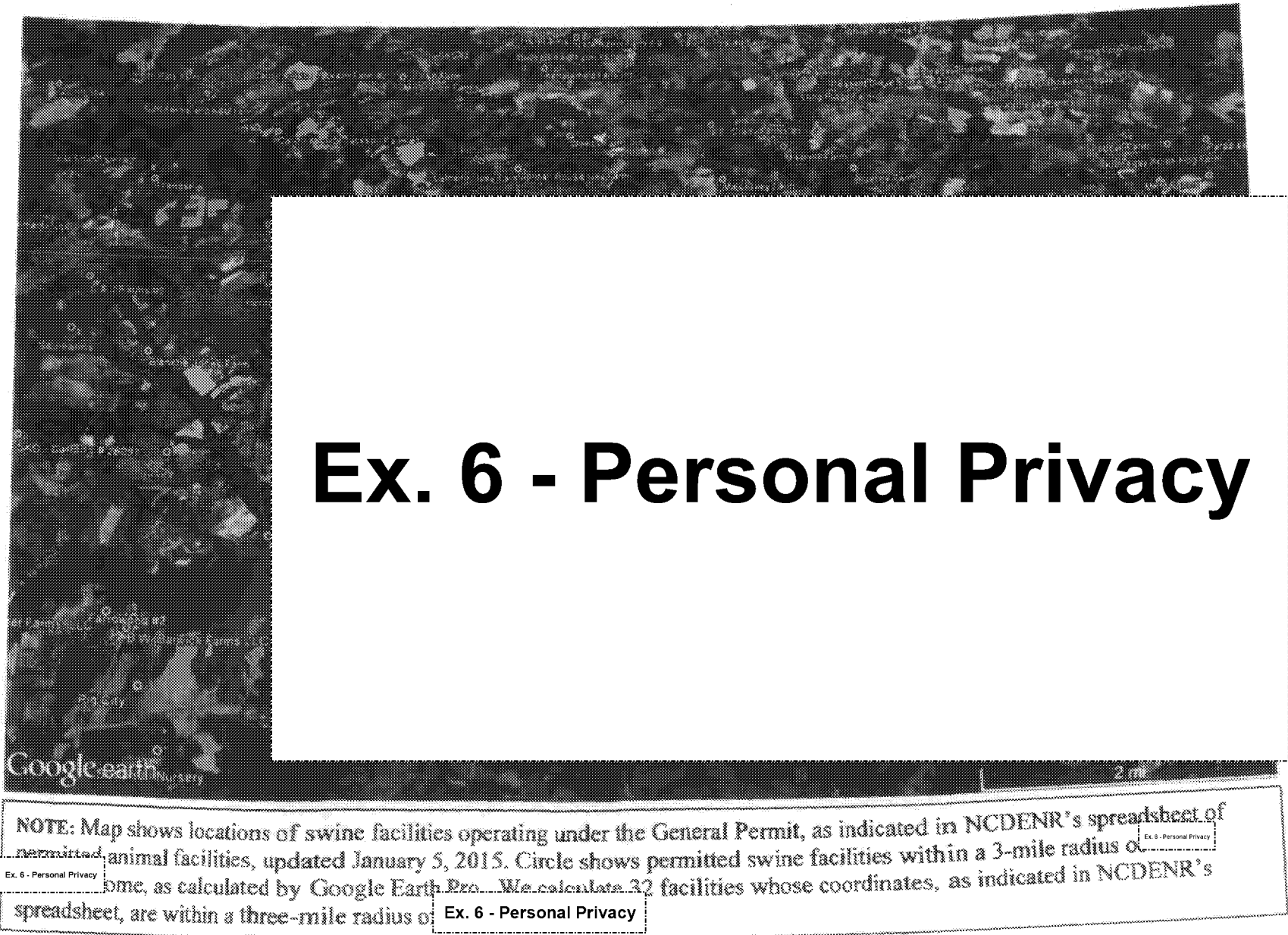
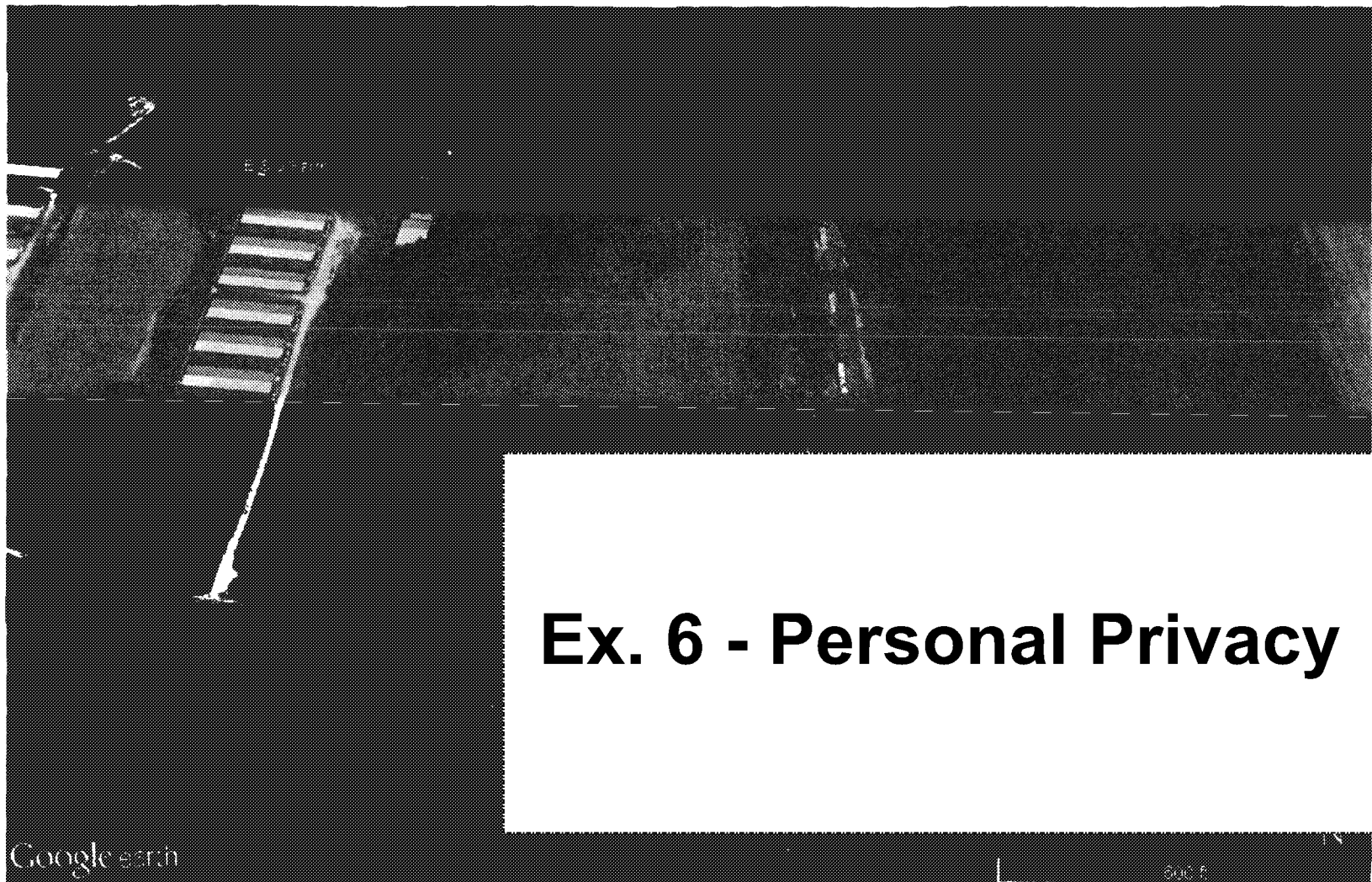


EXHIBIT 3



NOTE: Map shows locations of swine facilities operating under the General Permit, as indicated in NCDENR's spreadsheet of permitted animal facilities, updated January 5, 2015. As calculated by Google Earth Pro, the distance between yard and the sprayfield across the street is approximately 48 feet and the distance from the western edge of her property to the sprayfield adjacent to her is approximately 100 feet.

I have reviewed my declaration dated 8/28/14 consisting of 3 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on 11/15/16.
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated August 12, 2015 consisting of 7 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov 15, 2016
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy**. I am of legal age and competent to give this declaration. All of the information herein is based on my personal knowledge unless otherwise indicated.

Background

2. I am over 50 years old. I live in the **Ex. 6 - Personal Privacy** North Carolina area. I am African-American.

3. I am a **Ex. 6 - Personal Privacy**.
After graduating, I served as a **Ex. 6 - Personal Privacy** and I ultimately achieved the **Ex. 6 - Personal Privacy**. I also worked as a **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy**, I operated a **Ex. 6 - Personal Privacy** and I managed **Ex. 6 - Personal Privacy** before I moved to North Carolina **Ex. 6 - Personal Privacy**.

4. I am a full-time **Ex. 6 - Personal Privacy** h, which is located **Ex. 6 - Personal Privacy** North Carolina (Pender County). I serve a **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy**.

Experience as **Ex. 6 - Personal Privacy** **Located Near Hog Facilities**

5. There are five hog facilities within a two mile radius **Ex. 6 - Personal Privacy** as well as several large chicken farms.

6. I first learned about CAFOs (Concentrated Animal Feeding Operations) in October 2004, when I came down to visit **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy** was touring the community and introducing myself, I remember asking, "My God,

Exhibit 18

what is that smell?" I was told, "Oh, it's those pigs." I recall being amazed that people could live with such an awful smell.

7. The smell from the hog CAFOs changes depending on the wind and weather. Sometimes I cannot smell it, but in hot, humid, moist weather the stench is inescapable.

8. I personally pass by hog CAFOs several times a week on the way Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy Sometimes smell from the CAFOs gets in my car and stays there.

9. I regularly experience symptoms such as coughing and draining of my eyes. My doctor has told me that allergies may be to blame, and I wonder if pollution from CAFOs contributes to my symptoms. Sometimes the smell is so strong it makes me feel like I am going to regurgitate.

10. Being near so many hog CAFOs seriously interferes with activities Ex. 6 - Personal Privacy

One of the most important events of the year **Ex. 6 - Personal Privacy** during

which we use outdoor grills. The smell from the CAFOs often forces us to Ex. 6 - Personal Privacy

but doing this leads to the church Ex. 6 - Personal Privacy

11. In general, the stench from the CAFOs prevents Ex. 6 - Personal Privacy from enjoying the outdoors and keeps **Ex. 6 - Personal Privacy** We have had to cut back on activities such as picnics, car washes, and carnivals with slides and animals for the children.

12. As a Ex. 6 - Personal Privacy I hear about the ways in which hog CAFOs affect the lives of people

Ex. 6 - Personal Privacy The smell often interferes with their daily lives and enjoyment of their

property. Some feel under pressure not to speak out. One Ex. 6 - Personal Privacy is

asthmatic and is frequently hospitalized for his condition. Although the cause is not known, I wonder if pollution from CAFOs triggers his symptoms.

13. In 2006, there was a period when the smell from CAFOs was so bad—as if something had died Ex. 6 - Personal Privacy On Wednesday, August 6, 2006, I tried contacting the Pender County Health Department to report it. My phone calls were not returned. I have not contacted other state or county authorities regarding CAFOs since then because I was under the impression that they could not or would not do anything about the problem.

14. I wonder why CAFOs are all located in areas where African-Americans, Mexican-Americans, and lower-income families live, and why there are no CAFOs in more wealthy, Caucasian areas. I think the location of CAFOS and the way they affect nearby communities such as my congregation is a civil rights issue.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in Ex. 6 - Personal Privacy North Carolina on August 29th, 2014

Ex. 6 - Personal Privacy

EXHIBIT 1

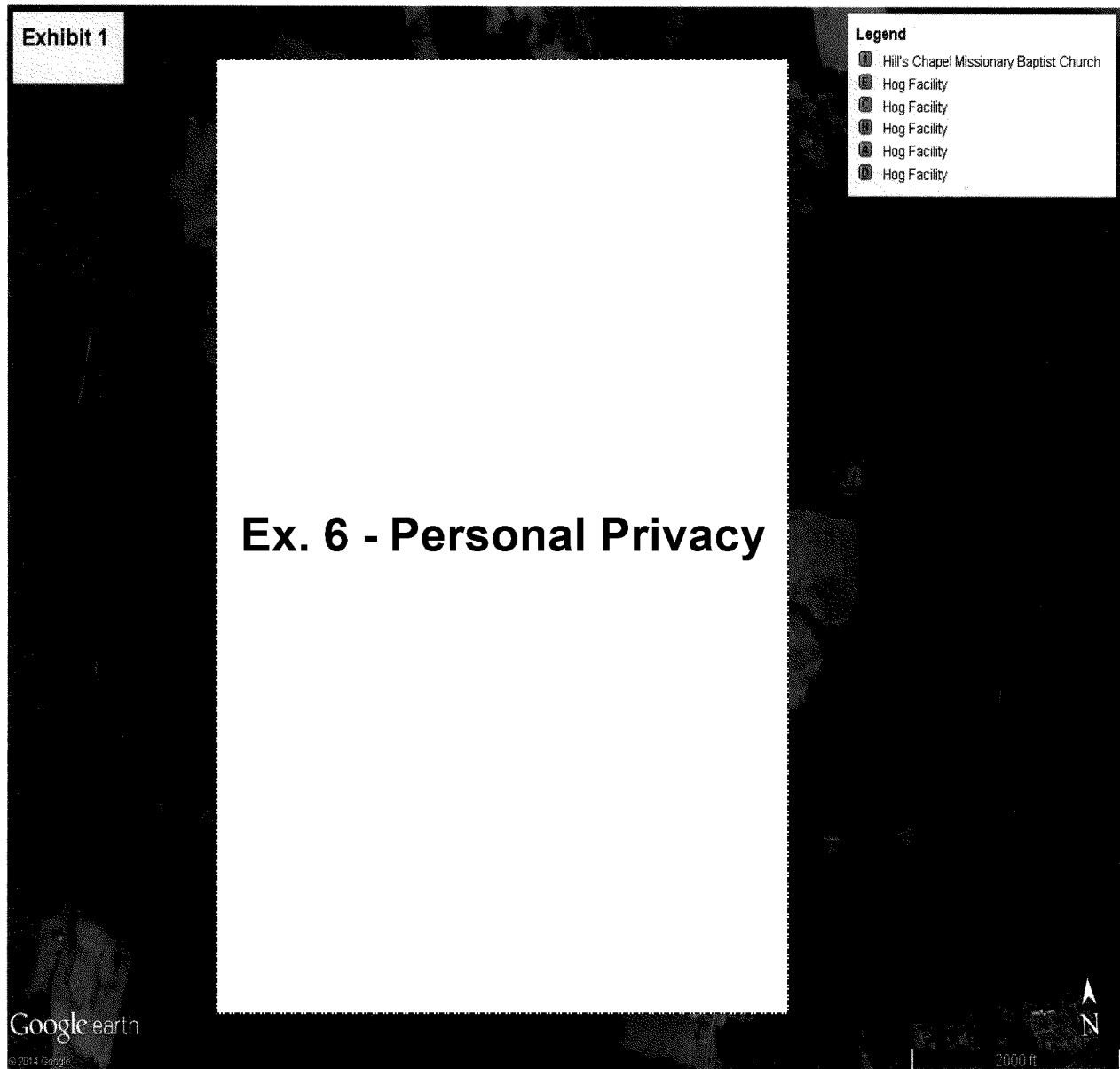


Exhibit 19

August 29, 2014

I have reviewed my declaration dated November 15, 2016 consisting of 4 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on _____ Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy** I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge unless otherwise stated.

Background

2. I am African-American. I live at **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy** North Carolina. I am **Ex. 6 - Personal Privacy** years old. This property is owned by my family.

3. I live near several hog houses. There is a hog house a mile from my house and another on the other side of my house.

4. I've been living near hog houses since they were built near my home nearly 20 years ago.

Experience Living Near the Hog Facilities

5. I am concerned about the hog facilities because it seems like I can smell the odor almost everywhere I go.

6. The hog facilities make it more difficult for me to breath. I believe that the hog facilities cause me to sneeze and my nose to stop up. I have a **Ex. 6 - Personal Privacy** **Ex. 6 - Personal Privacy** to me who can hardly breathe. He has asthma. He's had this issue for about twenty years, so about the same time that the hog facilities have been nearby.

7. The hog facilities have a very bad smell. They attract flies and the flies cover up my car port. I can't cook outside because of the smell and because of the flies. The odor is worse than anything anyone would ever want to inhale.

8. I have had these concerns about the odor, the flies and my families' well-being ever since the hog facilities were built—that's been about twenty years.

9. The hog facilities affect the whole community because of the odor. People in the community have the same problem as I have; they can't have cookouts or spend much time outdoors without flies and odor.

Activism around the Hog Facilities

10. If I could change the practices at these hog facilities, I would change the way the hog farmers spread the waste out in the fields. Everyone can smell it if they're close by. I think the hog farmers should do it a different way.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in Yorkville, NC, North Carolina on August 30, 2014.

Signed:

Ex. 6 - Personal Privacy

Address: **Ex. 6 - Personal Privacy**

Addressee: **Ex. 6 - Personal Privacy**

Map radius: Approximately 1 mile

Source: Google Maps

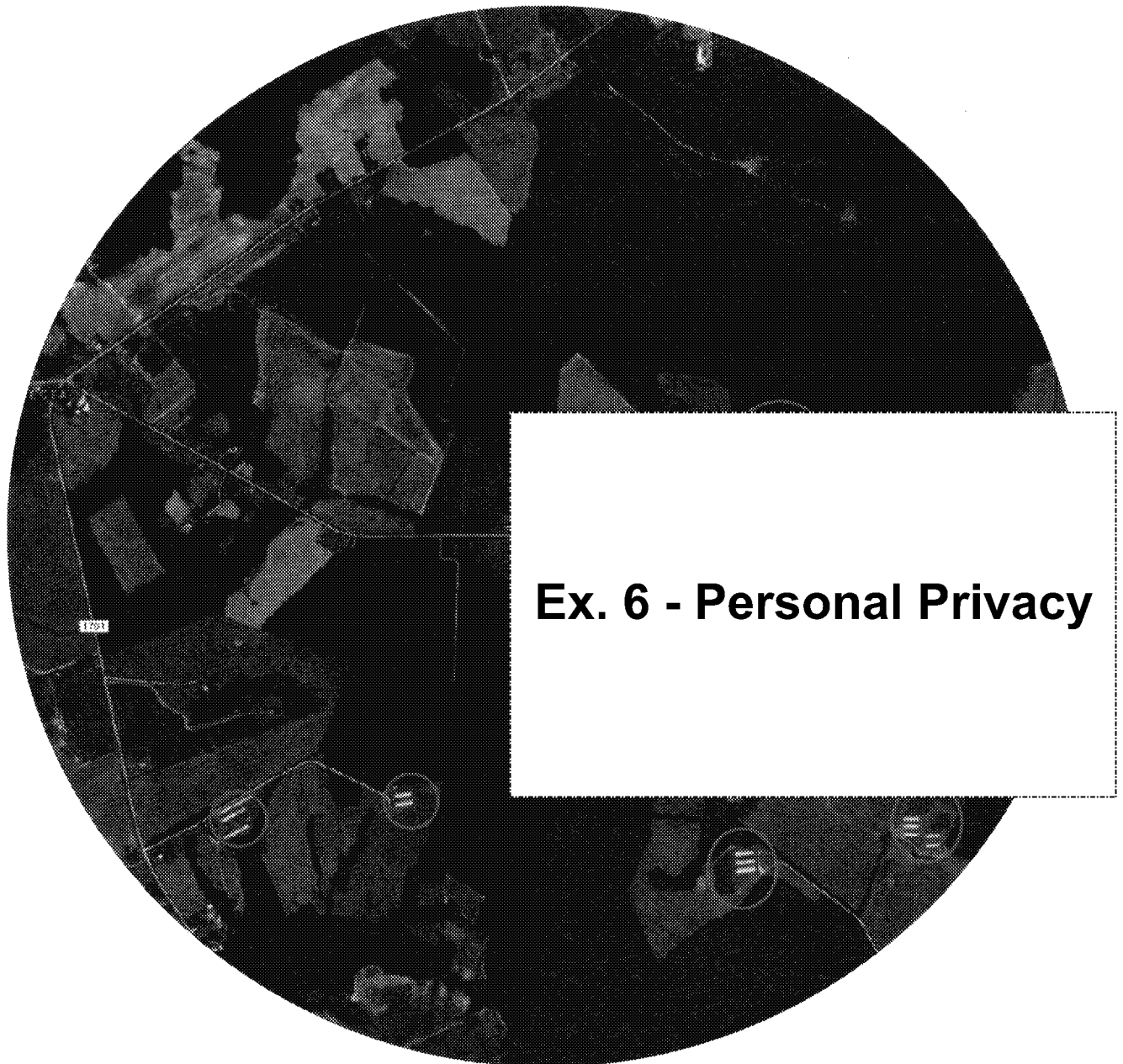


Exhibit 32

I have reviewed my declaration dated _____ consisting of _____
pages, and I affirm that the statements contained therein are still true and correct to the best of
my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on 11-14-16.
Date

Ex. 6 - Personal Privacy

Name (printed)

DECLARATION OF Ex. 6 - Personal Privacy

1. My name **Ex. 6 - Personal Privacy** I am of legal age and competent to give this declaration. All of the information in this declaration is based on my own personal knowledge unless otherwise indicated.

Background

2. I live at **Ex. 6 - Personal Privacy** Duplin County, North Carolina. (See Attached Map). I own my home and I have lived there for six years. Before I moved back to **Ex. 6 - Personal Privacy** which is where I'm from originally, I lived in **Ex. 6 - Personal Privacy**

3. I am African-American. I am **Ex. 6 - Personal Privacy** years old. I retired from driving trucks **Ex. 6 - Personal Privacy** and spend a lot of my time at home.

4. The nearest hog farm from my home is about half a mile away, right across the field.

5. I talk with neighbors about that hog farm and how it smells—and what we could do about it. I attend the Rural Empowerment Association for Community Help (REACH) meetings to learn about what's happening and to find out if there is anything that we can do about it.

6. I enjoy hunting. Every year I hunt from October to New Year's. I have a hunting dog. When I go hunting, I am about 50 feet from the hog farm that is closest to where I live. It smells even worse when I am so close to it.

7. I have well water but I don't drink it—it's polluted. If it rains a lot, I can smell the hog waste in my well water, so I don't drink it. In Ex. 6 - Personal Privacy I had my well water tested and I was told that it was not safe to drink. At that point, I decided to buy water. I spend about \$10 a week on bottled water. I spend \$5 dollars on a case and I buy two cases every week.

8. Because of the smell from the hog farms, I rarely go outside. The rain brings the smell around. I used to smell it every day depending on how the wind was blowing.

9. I can't keep the windows open in my home because of the smell from the hog farms. I can also smell the hog farms at the senior citizen building that I go to in Kenansville, on Routledge Road. There's a hog farm about a mile away from there. Between the chicken farms and the hog farms, it smells really bad.

10. I wish they would change how they spray the waste and how they maintain the open lagoons. I wish they'd close the hog farms.

11. African-Americans are more affected by the hog farms because the hog facilities are located in the Black people's communities.

12. I never expected to face the problems from the hog farms when I moved back from Ex. 6 - Personal Privacy North Carolina. When I moved away there weren't big hog farms like this. Now that I've come back home, the area is surrounded by them.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed in **Ex. 6 - Personal Privacy** n Carolina on August 30, 2014

Signed **Ex. 6 - Personal Privacy** —

Address: **Ex. 6 - Personal Privacy** NC 28249

Addressee: **Ex. 6 - Personal Privacy**

Map radius: Approximately 1 mile

Source: Google Maps



Ex. 6 - Personal Privacy

I have reviewed my declaration dated _____ consisting of _____
pages, and I affirm that the statements contained therein are still true and correct to the best of
my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on 11-14-2016
Date

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated August 30, 2014 consisting of 11 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov 15, 2016.
Date

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

Name (printed)

I have reviewed my declaration dated 8/12/15 consisting of 6 pages, and I affirm that the statements contained therein are still true and correct to the best of my knowledge, information and belief through today's date.

Executed in Duplin County, North Carolina, on Nov 15 2016.
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

DECLARATION OF **Ex. 6 - Personal Privacy**

1. My name is **Ex. 6 - Personal Privacy** I am of legal age and competent to give this declaration. All of the information herein is based on my own personal knowledge unless otherwise stated.

Background

2. I am African-American. I live at **Ex. 6 - Personal Privacy** Duplin County, North Carolina. (See Attached Map). I am **Ex. 6 - Personal Privacy** years old and I am a **Ex. 6 - Personal Privacy**

3. I own my property. It is located near a hog facility. The closest hog farm is about half a mile away. There is also a poultry facility about half a mile away as well. I have lived near the hog facility ever since it was built here, about ten to fifteen years ago, if not longer.

4. There are two other members of my current household, **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy

years old.

5. Other people have lived in this household and may have been affected by the hog facility, including **Ex. 6 - Personal Privacy**

Ex. 6 - Personal Privacy

Exhibit 15

Experience Living Near the Hog Facilities

6. When the facility sprays, the odor is really bad for three days. The smell of the hog facility makes me sick. The smell attracts flies also, which are really bad.

7. When the facility is spraying, or for the days following; I can't raise the windows. We can't cook outdoors or do anything in the yard when the smell is present. For example, I can't hang my clothes outside to dry because the smell will get in the clothes. I spend a lot of time in my garden, and I don't like to be out there when the smell comes. I also don't like being on the porch when the smell comes; it's difficult to sit on the porch when I have to fight flies all the time.

8. The odor has gotten worse over time. It is now as bad as it's ever been.

9. We are on municipal water and have had our water tested. The tests say it is fine, but sometimes when you turn the water on, it turns brown. This did not happen before hog facility started operating.

10. I think I would have a problem selling my property if I wanted to, because of the hog houses.

Health Issues from Living Next to the Hog Facilities

11. My Ex. 6 - Personal Privacy and I have health conditions that I believe might be connected to the hog facility. I have sinus problems, and my ear stops up. Ex. 6 - Personal Privacy has had asthma for five years. We did not have these health conditions before the hog facility was built.

Activism around Hog Farming

12. I joined the Rural Empowerment Association for Community Help (REACH) organization. They try to work to get the hog houses fixed so we won't smell that odor. I have been involved with the REACH for seven years. REACH named me Ex. 6 - Personal Privacy because of my service to my community.

13. If I could change the practices at the hog facilities, I would want them to get rid of the odor, clean up the lagoons, and stop spraying.

14. I believe that the hog facility issue is a civil rights issue because they're built closer to the Black neighborhoods in this county.

I declare under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief.

Executed Ex. 6 - Personal Privacy North Carolina on August 30, 2014.

Signed: **Ex. 6 - Personal Privacy**

Address:

Ex. 6 - Personal Privacy

Addressee:

Ex. 6 - Personal Privacy

Map radius: Approximately 1 mile

Source: Google Maps



I have reviewed my declaration dated _____ consisting of _____
pages, and I affirm that the statements contained therein are still true and correct to the best of
my knowledge, information and belief through today's date.

Executed in _____ County, North Carolina, on 11-14-2016
Date

Ex. 6 - Personal Privacy

Signature

Ex. 6 - Personal Privacy

Name (printed)

To: O'Lone, Mary[olone.mary@epa.gov]
From: Isales, Daniel
Sent: Thur 1/26/2017 9:09:06 PM
Subject: Ex. 6/7(c) - Privacy
Interview with **Ex. 6/7(c) - Privacy**

Daniel L. Isales (3RC60)

United States Environmental Protection Agency, Region III

Environmental Science Center

701 Mapes Road

Fort Meade, Maryland 20755-5350

(410) 305-3016

Isales.daniel@epa.gov

Interview with Ex. 6 - Personal Privacy

November 23, 2016; 9:30 AM – 10:37AM:

Participants: Mary O'Lone (OGC), Daniel Isaacs (Region III)

While participating in the on-site visit to North Carolina, Mary O'Lone met Ex. 6 - Personal Privacy who indicated that she would be amenable to being interviewed via telephone; accordingly, arrangements were made to speak to Ex. 6 - Personal Privacy on this date.

Ex. 6 - Personal Privacy indicated that she was not a part of, nor had been in communication with, the North Carolina Environmental Justice Network, the Rural Empowerment Association for Community Help (REACH), the Waterkeeper Alliance, Inc., Earthjustice or the University of North Carolina School of Law Center for Civil Rights. She indicated that she identified as a Native American, specifically as part of the Lumbee Tribe. Ex. 6 - Personal Privacy said that she was born and raised in the area of Ex. 6 - Personal Privacy and that she had family in Robeson and Scotland Counties. She grew up at Ex. 6 - Personal Privacy (where her parents still live) and currently lives at Ex. 6 - Personal Privacy NC.

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy remembered when the industrial hog and chicken farms arrived which was around the time she was in middle school (7-8th grade). Once the farms started arriving their number grew quickly. She did not recall any notice being provided to the neighbors regarding the influx of farms, but she did indicate that her parents were not ones to discuss those sort of matters in front of their children. She recalls that at that time the debate concerning the farms centered on impacts on the residents versus the potential for new jobs. The area had once been rural with some manufacturing (e.g., Converse), but the manufacturing plants have been closing down.

Once the farms arrived, the summertime became unbearable outside. As a child she would play outside, and used to be in the yard constantly but once the farms she no longer wanted to. The family used to hang clothes outside in the line previously, but could no longer do so because the smell would permeate the clothing if left outside (the clothesline has since been torn down). At times when in vehicles she would hit a wave of smell, which made activities such as riding the bus difficult as there would be no air; the odor would eventually pass, but they would put their shirts over their noses until the odor dissipated. There were increased flies and buzzards at the house once the farms arrived. There was one hayfield which was in proximity to the house. Spraying of the fields were done for the winter crops and for the summer crops. The smells in the winter were not quite as bad. Once the fields were sprayed the odor lingered for a week, week and a half. She could not recall any runoff from the spray fields and could not observe any waste lagoons from her house or from the road. With respect to spraying, she observed both trucks spraying and a centralized spraying system which would radiate out.

Her parents' house was on county water so there were no increased water costs associated with the influx of the farms. Prior to the farms the house always had the windows raised to let the house air out; however, that is not done as often and they have increased their use of air conditioners. Family gatherings are now almost always held inside a building; for the most recent cookout they needed to use 3-4 fans to keep the flies and gnats away.

With respect to trucks, she has seen trucks with live pigs and trucks which had just dropped off pigs. She has not seen any trucks with dead pigs, nor any deadboxes. She indicated that one could not stay behind trucks carrying live hogs because of the odor (truck which had just dropped off pigs also retained a strong odor). Based on her observations from driving around the area, she would estimate that there were a couple of trucks a month passing through. There were no streams or ponds close by which she could walk to for fishing. Ms. Oxendine recalled what appeared to be difficulties by the owners of the house across from her parents' house in terms of selling it. However, she indicated that there hasn't been any evidence of residents leaving en masse; even within her generation most people stay around (if they move, they move into town, the town over).

She did not recall any health impacts related to the farms; there are many smokers in the family so respiratory ailments are related to that. She was not sure if her parents ever reached out to any regulatory authority regarding the impacts from the farm.

Ex. 6 - Personal Privacy

She has lived at this residence for the past 8 months (she was married in April). A turkey farm is closest to them (a little over a mile) and the owners of that farm also plant corn and other crops so there is constant spraying using trucks. There is a big field close to her house, but she has never had any incidents of overspray. She did note, however, that her husband's grandmother's house is directly next to the fields and she was not sure if they have ever had any impacts from spraying. When she arrived at the house in April they were preparing the fields and a couple of weeks ago there was spraying in preparation for the winter crops and there were strong odors associated with those activities. She does not believe there hasn't been any spraying since Hurricane Matthew so the smells have not been bad the last couple of weeks. Spraying can happen any day, typically before 8; it can also happen on weekends, although typically not on Sunday. There have not been many trucks passing by since it is not a major route. The residence is served by county water. In terms of pests, flies, gnats and buzzards are bad. She was not sure of any changes in the nearby pond over time. Any gatherings at the residence are inside. Her husband gardens, but there are flies, gnats, and mosquitos outside.

A lot of people just view the impact from the farms as a fact of life even though people talk about it all the time. There are several members of the **Ex. 6 - Personal Privacy** are also swine CAFO owners.

To: Heard, Anne[Heard.Anne@epa.gov]
From: Lapierre, Kenneth
Sent: Thur 1/12/2017 6:53:41 PM
Subject: Talking Points for Bill Ross Discussion

- Introductions

Ex. 5 - Deliberative Process

- Mention the one thing on our radar that will be before him later today is the REACH title VI complaint. HQ OCR has the lead, R4 is supporting and that he will receive a letter later today from HQ that talks about where we are at in our investigation and how we want to engage NCDEQ in a discussion on next steps.

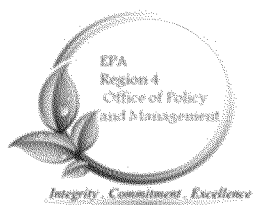
Thanks--Ken

Kenneth R. Lapierre

Assistant Regional Administrator

U.S. EPA Region 4

(404) 562-8570



I AM Diversity!